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Big Blue Bolsters Info Center Support

By Lois Paul
CW Staff

: PLAINS, N.Y. — IBM last week made a ımmitment to the information center con- the announcement of an in-house version ɔlication System. The software had previ- n available only to sobscribers of IBM's ed Information Network.

n end-user-oriented data management and ıformation retrieval package. Its release as a separate product may represent IBM's answer to the challenge posed by independent software vendors who offer fourth-generation languages and data management tools that support end-user computing in information centers.

The in-house version of AS, which is called VM/AS and will be delivered in October, will run on 370, 4300, 30 series and plug-compatible processors under VM/SP Release 2. It requires IBM's GDDM/Presentation Graphics Facility and IPCS/E.

Besides introducing VM/AS for in-house users, IBM announced that on July 12 an enhanced version of AS was placed on the Information Network. It is that enhanced release — which reportedly includes high-resolution, seven-color business graphics; a data dictionary; expanded full-screen operations; and conversational aids to command building — that will be delivered to in-house users.

Available since 1975 on a time-sharing basis, AS is geared for use by executives in a variety of industries for decision support and business planning applications that require graphics, reports and specialized analysis. It allows business professionals to use English language commands to perform modular functions such as data management, information retrieval, reporting, business graphics, business planning, analysis, project control and business communications.

AS' opdated graphics facility reportedly extends business graphics to the IBM 3279 Model 3 terminal and supports new graph types.

The data dictionary added to the system is said to include a large number of defaults for report and

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Prime Caps Its CPU Line With Debut Of Supermini

By Patricia Keefe
CW Staff

NATICK, Mass. — Prime Computer, Inc. last week extended its 50 series of 32-bit superminicomputers upward by announcing a system that is said to support up to 128 terminals and handle up to 255 separate processes in an interactive operating environment.

The Prime 9950 supermini is also said to provide 50% greater system-level performance than the firm's previous top-of-the-line system, the Model 850, even though the latter is a multistreaming machine and the new system is a single-streaming machine. In addition, the 9950 is up to 2½ times more powerful than the single-streaming Model 750, a Prime spokesman said.

At the same time that it announced the 9950, Prime introduced an intelligent communications subsystem for its 50 series and a streaming-tape subsystem for its low-end Model 2250 (story on Page 8). It also reduced the packaged system prices of its Models 750 and 850 computer systems.

Although priced at a level comparable to previous 850 packaged system prices, the 9950 reportedly boasts a number of technological improvements designed to support multiuser, general-mix application environments. Among them are a five-stage synchronous pipeline design and very high-speed emitter-coopled logic circuitry. These architectural enhancements are said to allow concurrent processing of up to five separate instructions.

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For AT&T, News Both Good and Bad

Judge Modifies U.S. vs. AT&T Settlement

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — U.S. District Court Judge Harold H. Greene made some major changes in the terms of the settlement that ended the U.S. vs. AT&T antitrust case. Issued on July 8, Greene's changes held both bad and good news for AT&T.

The bad news:

- AT&T must relinquish virtually all rights to the Bell name and logo to the Bell operating companies, which will be divested next January.
- AT&T must make more of its patents available royalty-free to the Bell operating companies.
- AT&T must repay the Bell operating companies for losses they may incur in reconfiguring their networks to comply with the settlement, known officially as the Modified Final Judgment.

AT&T "probably will decide within the next two weeks whether to appeal Judge Greene's decision," General Counsel Howard Trienens said shortly after Greene's decision was released.

The decision also contained substantial good news for AT&T:

- Despite objections from AT&T's competitors, who fear the special relationship between AT&T and the Bell operating companies will be perpetuated after divestiture, Greene accepted a Central Staff Organization proposed by the phone company and its operating companies.
- Greene also said any contingent liabilities resulting from pending antitrust suits will be divvied up among AT&T and the 22 to-be-divested Bell operating companies.

Moreover, Greene awarded the Bell operating companies two plums:

- Subscribers making toll calls within a Bell operating company Local Access and Transport Area will need to use fewer digits to access the Bell operating companies' facilities than to access the facilities of competing carriers.
- The Bell operating companies will be free to build and operate inter-Lata communications facilities to support their internal operational needs. This is potentially important

(Continued on Page 4)

Security Experts Raise Red Flag About End Users' Floppy Disks

By Tom Henkel
CW Staff

Personal computers may be great tools for corporate executives, but security experts fear that the floppy disks that run on personal computers — and contain critical corporate data — are easy targets for thieves.



Moreover, because most microcomputer users fail to produce any kind of backup for the data in their systems, natural disasters such as fires and floods could wipe out years of work.

While most large organizations have taken steps to protect data stored on mainframe systems, few have formal plans to protect microcomputer data. Making the issue even more serious is the fact that some information residing on end users' micros is never transmitted to a company's main computer site, where the DP staff regularly puts on tape for archival storage the data that is sent to the mainframe.

Furthermore, since many DP staffs do not know the types of software that end users have developed for their individual micro systems, recovering from a disaster may be hopeless, observed Robert P. Campbell, president of Advanced Information Management, Inc. in Woodbridge, Va.

Why are these security issues becoming more visible? Micros may

(Continued on Page 10)



The Prime 9950 can operate as a host system or a DDP node.

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Please address all correspondence to the appropriate department at Box 880, 375 Cochituate Road, Framingham, Mass. 01701. Phone: (617) 879-0700. Telex: 95-1153.

OTHER EDITORIAL OFFICES & SALES OFFICES:

New York: Suite 7C, 401 East 80th St., New York, N.Y. 10021. Phone (212) 570-2135.

West Coast: 257 Lytton Ave., Palo Alto, Calif. 94301. Phone: (415) 328-8064.

Washington, D.C.: 880 National Press Building, 529 14th St. N.W., Washington, D.C. 20045. Phone: (202) 347-6718.

England: Bill Dunlop, Stephen Thomas, Penny Holman Assoc., 345 Goswell Rd., Islington, London EC1V 7ND. Phone: 01 278 3415/6.

W. Germany: Eckhard Utpatel, CW Publikationen, Feuerbachstrasse 37, 8000 Munich 40. Phone: (089) 34-90-61. Telex: 5215350.

France: Axel Leblois, Le Monde Informatique, 42, Avenue Montaigne, 75008 Paris. Phone: 723 85 66.

Japan: Mr. Shoken Kanda, Computerworld Japan, 7-8 Shimbashi 1-Chome, Chuo-ku, Tokyo 104. Phone: (03) 535-3082, Telex: 252-427. Jonshan (c) Yamada Tokyo Representative Corp., Yamaguchi Bldg., 2-12 Kanda Jimbo-Cho, Chiyoda-Ku, Tokyo 101. Phone: (03) 230-61178. Telex: 126868.

Australia: Alan Power, Computerworld Pty. Ltd., 37-43 Alexander Street, Crows Nest, NSW 2065. Phone: (02) 4395133. Telex: AA74782 COMWOR.

Brazil: Eric Hippeau, Data News, Computerworld do Brasil, Setores e Publicacoes Ltda., Rua Alvaro Coimbra, 126 10th Floor, 20031 Rio de Janeiro, RJ Brasil. Phone: (021) 240-8229. Telex: 2130 SWORD BR.

Mexico: Richard Small, Computerworld de Mexico, Chapultepec 20-2, Colonia Roma, Mexico 7 D.F. Phone: (905) 514-4245, (905) 514-4309. Telex: 1771300 ACMAME, 1777809 ACMAME.

Spain: Paul Kelley, Computerworld/Espana, Corazon, 13, Madrid 4. Phone: 231-23-45, 231-23-46, 231-23-48. Telex: 47946 CW E.

Denmark: Preben Engell, Computerworld/Denmark, Gamtofte Vaenge 9E, 2820 Copenhagen S. Phone: 01-1234-11. Telex: 27560 cwdan.

Sweden: Bengt Mannerfelt, Computerworld/Sweden, Nitro Media AB, Vattugatan 9S, 11520 Stockholm.

Italy: Claudio Cardenia, Gruppo Editoriale Jackson, s.r.l., Via Rosellina 12, 20124 Milano.

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Trading Volume Too Low

Merrill Lynch Drops Out of NSTS

By Tom Henkel
CW Staff

CINCINNATI — Merrill Lynch & Co. has pulled out of what has been billed as the most sophisticated automated stock exchange in the U.S. The brokerage house cited a low trading volume as the major reason it ended its six-year involvement with the National Securities Trading System (NSTS) of the Cincinnati Stock Exchange (CSE).

Merrill Lynch's exit is regarded as a major blow to the Cincinnati exchange, which owes roughly half its volume to markets made by Merrill Lynch on 11 of 135 issues offered through the CSE.

Fourteen broker/dealers currently use the Cincinnati exchange. CSE President Richard Neihoff said the remaining firms are regional brokerage houses.



Earlier this year, a Merrill Lynch & Co. broker/dealer used a terminal to bid on the automated securities auction floor at the Cincinnati Stock Exchange. Merrill Lynch pulled out of the Cincinnati exchange last week.

Early CSE Victory

Early this year, the CSE claimed a major victory in promoting fully automated securities trading in the U.S. after the Securities and Exchange Commission (SEC) granted the NSTS a permanent rather than experimental status [CW, Feb. 14]. Now some observers, including Dan Brooks, former SEC attorney and currently a principal in the Springfield, Va.-based Computer Law Advisers, say the Cincinnati exchange may never be able to recover fully from the loss of Merrill Lynch.

While admitting some disappointment about the loss of Merrill Lynch, Neihoff predicted that the CSE will be able to recoup lost Merrill Lynch volume through proposed automated links with the order-routing systems of brokerage service bureaus. Ken Eber, a trustee of the CSE, believes the exchange will be able to replace the Merrill Lynch volume by the end of the year.

While most major stock exchanges currently employ some level of automation, the Cincinnati system offers an automated trading floor in addition to the commonly used automated routing and exchange systems. Viewed by some as a gimmick, the automated trading floor has drawn criticism from more traditional stock exchanges, which claim that securities transactions are best handled through face-to-face dealings.

Neihoff contended, however, that the electronic marketplace assures fair competition among dealers and brokers and has become a proven technology in other parts of the world.

The current NSTS is based on a Data General Corp. stock trading system, which was significantly enhanced and modified by Control Data Corp.

CDC also maintains the multiprocessor configuration of two DG S/140 and two S/130 minicomputers in its Jersey City, N.J., Electronic Trading Services Division.

Volume on the CSE, which runs around 100,000 to 300,000 shares daily, has been slow because the CSE can deal only among member broker/dealers. That means most members also must maintain an involvement with other major stock exchanges, such as the New York Stock Exchange, according to Brooks. Brooks contends the CSE has been unpopular because it fails to offer brokers and dealers a clear advantage over other, larger exchanges.

Noting that most major exchanges are currently beefing up automation capabilities, Brooks said the CSE's major failing is not the automated trading floor but its inability to trade any stock through the NSTS.

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Judge Makes Changes to AT&T Settlement

(Continued from Page 1)

to users because some of the facilities — such as those used for Common Channel interoffice Signaling (CCIS) — could be the basis for commercial services.

The Bell operating companies are presently barred from offering such services, but Greene's decision lends support to a campaign now under way to remove that restriction. If the restriction is removed and the Bell operating companies begin marketing commercial services supported by CCIS and similar facilities, the prices for the services might be less than those asked by competitors such as Telenet Computer Corp. or Tymnet, Inc., since part of the Bell operating companies' costs would be borne by their internal use of the facilities.

Under the previous reorganization plan, drafted by AT&T and the Bell operating companies earlier this year in anticipation of the divestiture, the Bell operating companies were given exclusive rights to the Bell logo for services, but not for equipment. They could use the Bell name similarly, provided a geographic modifier was added. Under that plan, AT&T could not use the logo, but would be free to use the Bell name nationally if modified by the word "American." It could also continue to use "Bell System" and "Bell Laborstories."

Two Minor Exceptions

Greene's decision last week denied AT&T, with two minor exceptions, any use of the Bell name and logo. The company can attach the Bell name to products and services marketed abroad, and it does not have to rename Bell Laboratories.

Explaining his decision, Greene stressed the need to destroy any "implication that there is a continuing link between AT&T and the operating companies."

AT&T has spent an estimated $30 million so far in popularizing the name of its new subsidiary, American Bell, Inc. If Greene's decision stands, not only will this investment go down the drain, but millions more will have to be spent to develop and promote a new name for the subsidiary.

AT&T Not Expected to Appeal

AT&T probably will not appeal the changes made to the U.S. vs. AT&T settlement agreement by U.S. Judge Harold H. Greene, attorneys and other spokesmen for a number of the phone company's competitors said last week.

One reason: A decision made by Greene last August that laid the basis for his latest ruling has been upheld by the U.S. Supreme Court. It would be very unlikely, "given this expression of confidence, for the court to question Greene's judgment on the details," explained one source, who added that "AT&T almost certainly is aware of all this."

All of the sources agreed that the company wants the divestiture of AT&T's operating companies to be consummated as quickly as possible. The longer the process takes, the more it costs in money, personnel and limitations on AT&T's freedom of action, they pointed out. The company is unlikely to prolong the process by asking a higher court to review Greene's ruling, they said.

Greene Ruling to Hurt N.Y., Philly Users: ICA

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — Unfair charges will be levied on business telecommunications users located within the New York City and Philadelphia metropolitan areas because Judge Harold H. Greene treated the two areas differently from others with the same characteristics when he issued his changes in the U.S. vs. AT&T antitrust settlement last week.

So said Brian H. Moir, Washington counsel for the International Communications Association (ICA), a users group whose membership includes the nation's largest companies.

Philadelphia and New York are each part of corridors approved by Greene that encompass two Bell operating companies' service territories (officially known as Local Access and Transport Areas or Latas) and cross state lines. According to Moir, subscriber access lines that transmit calls both within a corridor and across a state boundary will be subject to an access surcharge established by the Federal Communications Commission (FCC) last December.

Interstate Users Exempt

Users in Washington, D.C., and many other metropolises will not have to pay this surcharge for similar service because their entire calling area is within a single Lata. "Interstate intra-Lata calls are not subject to the FCC surcharge," Moir explained, adding that the time charges for interstate intra-Lata calls are likely to be far less than those for interstate inter-Lata calls.

The New York corridor connects New York City with five northern New Jersey counties, while the Philadelphia corridor connects that city with three southern New Jersey counties. In each case, calls within these areas are now routed directly between end offices, rather than going up and then down the telephone network switching hierarchy — the path usually followed by calls transmitted between different Bell operating company service territories.

Greene implied in his recent decision that converting the New York and Philadelphia corridors into single Latas would destroy this efficient connection system. Adopting the ICA's recommendation would require an "enormous expenditure" to reconfigure existing transmission facilities, he said.

While Moir contended that the judge is wrong on both counts, he added that the ICA applauds the rest of the decision, especially Greene's demand that AT&T give the Bell operating companies royalty-free licenses to all of its terminal equipment and service patents, not just those pertaining to services the operating companies are presently allowed to offer. This change means that "ratepayers, who have funded Bell Laborstories' research and development activities for years, will now get a much bigger return on their investment."

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IBM Giving Brown $15 Million For 'Scholar Workstation' Project

PROVIDENCE, R.I. — Brown University last week announced a joint study venture with IBM, which will provide Brown with $15 million over three years to help establish a $50 million "scholar's workstation" project.

Brown's Institute for Research in Information and Scholarship (Iris) is being established to provide every student, faculty and staff member with a workstation by 1989. IBM will supply the university with hardware, including 700 workstations, as well as funding for five IBM researchers per year to work on Iris projects.

Brown's plan is to switch from its current time-sharing system to a system providing each user with a small, graphics-based workstation that ties into a universitywide broadband communications network.

According to William Shipp, associate provost at Brown, the Iris researchers will work on developing workstation operating systems, graphics-based user interfaces and independent access to distributed data bases, as well as means to communicate with other scholars through local, state, national and international networks.

"We'll be conducting a discipline-by-discipline study of the kinds of tools people need," Shipp commented. "This includes various kinds of text processing, editing tools for working with multiple media such as graphics and text, services to data bases and the creation of personal data bases."

Brown is currently in the process of installing 50 Apple Computer, Inc. Lisa computers, in addition to 30 Apollo Computer, Inc. DN300 desktop computers, all of which are gifts to the university from Apple and Apollo.

More Comments Sought on NAPLPS

WASHINGTON, D.C. — North American Presentation Level Protocol Syntax (NAPLPS), the proposed U.S. videotex display standard, has been sent out for a second round of public comment.

The new solicitation of views is required by American National Standards Institute rules because of the changes made to the draft standard in response to first-round comments.

Aug. 24 is the deadline for the second round of comments.

Key Points Of Decision From Greene

WASHINGTON, D.C. — The excerpts below summarize the key points of the decision issued by Judge Harold H. Greene on the U.S. vs. AT&T settlement agreement:

- "The [Bell] operating companies ... urge the court to accept a definition of 'equal access' as access whose 'overall quality in a particular area is equal within a reasonable range [for] all carriers' and to reject a more stringent definition which would demand ... identical technical quality ... The court accepts the operating companies' definition"
- Allowing AT&T and the Bell operating companies to share use of the Bell name, provided they use different geographic identifiers, "inevitably suggests that each of the operating companies provides service in a particular region ... while AT&T provides the national service ... This implication ... would have several significant anticompetitive effects ... [and] is ... inconsistent with the bedrock principles underlying the [consent] decree" — the agreement signed by AT&T settling the government's antitrust charges.
- The access charge decision made by the Federal Communications Commission last December "at bottom rests upon the proposition that novel bypass technologies may erode the financial health of the operating companies and that increased support from residential ratepayers will allow these companies to remain competitive. There is no reason to believe that bypass on a large scale is imminent. Further, evolving technology may ... result in reduced costs."
- Section VIII (C) of AT&T's consent decree provides that "the court may, in the future, allow the operating companies to enter lines of business presently prohibited to them. While the operating companies could not immediately ... sublicense patents useful with respect to such lines of business ... the patent licenses assigned to them at the time of divestiture will become valuable ... to the extent that Section VIII (C) is successfully invoked in the future."
- "The criticisms leveled at the Central Staff Organization (CSO) proposal fall essentially into two categories. First ... that AT&T has presented inadequate justification for what is contended to be an overly large and costly organization. Second ... that ... standards may be set by the CSO which will favor Western Electric products over those of competitors ... Since the [Bell operating companies] will be controlling the CSO — not the other way around — and since most of the costs will not be capable of capitalization, the local companies will have strong incentives to avoid wastefulness in the CSO's operation."

The second objection "is not without some force, [but] the risk ... is relatively small [because] there will be no continuing relationship between AT&T and the CSO and, therefore, no economic incentive for CSO personnel to favor Western Electric products."

Senate Slated to Get Bypass Bill

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — The telecommunications bill requiring users who bypass local exchange networks to help pay for those networks [CW, July 11] was scheduled to be introduced in the U.S. Senate last week. The bill will be considered by the Senate Commerce Committee and its communications subcommittee.

Sen. Bob Packwood (R-Ore.), the committee chairman, and Sen. Barry Goldwater Jr. (R-Ariz.), who heads the subcommittee, are sponsors of the measure, which contains the following key provisions:

- The Federal Communications Commission's December access charge plan, which requires all telephone subscribers to pay for local access to the long-distance network, would be superseded by fees levied on long-distance carriers; these carriers presumably would pass the charges on to their customers.

Operators of private intercity networks that interconnect with one or more local telephone networks would also have to contribute, a committee staffer said.

The bill says the fee system must treat all paying parties equally and makes the details, such as the derivation of the fees, subject to public review.

- By Jan. 1, 1986, a state/federal Universal Telephone Service Joint Board would establish the subsidies needed to cover the higher costs of providing basic intra-Lata telephone service incurred by smaller telephone companies.

(Lata is an acronym for Local Access and Transport Area, the new designation for a local telephone company's service territory. Intra-Lata service includes toll services terminating within the Lata, as well as local service.)

The subsidies would be paid by any long-distance carrier, private system or communications reseller employing local telephone company or local exchange bypass facilities, a committee staffer explained.

- Anyone attempting to evade payment of the access charge or the subsidy would be fined a maximum of $100,000.

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FDR/DSF Support.
- Data Set Level Support. A user can specify a VSAM cluster name to dump or restore a VSAM DF/EF file. FDR will search the VVDS for the individual components which comprise this data set. Data set group name selection will also support the VSAM cluster names.
- DSF can restore DF/EF files from either a full volume backup or data set backup.
- DSF will restore DF/EF files with over 16 extents.

ABR Support.
- Incremental Backup. ABR can backup VSAM DF/EF files based on the update indicator (multi-volume excluded). If ABR finds that the update indicator is on for the data component, ABR will backup all of the components associated with this file.
- ABR will ARCHIVE or SUPERSCRATCH VSAM DF/EF files based on the last reference date. ABR will scratch and uncatalog these data sets.
- ABR will preallocate and catalog DF/EF files.
- ABR will report on DF/EF files by cluster name.

COMPAKTOR Support.
- COMPAKTOR will move DF/EF files except for catalogs or system data sets (ex: page data sets).

INNOVATION DATA PROCESSING

Application Generator Lauded for Cutting Code

By Paul Gillin
CW Staff

WORCESTER, Mass. — Although they hesitate to give it rave reviews, DPers at the Norton Co.'s Abrasives Marketing Group here credit an application generator with greatly reducing the amount of "mundane" Cobol code needed for a major development effort.

When the department embarked on a project to create a series of transaction-based, on-line applications last last year, it went in search of an application generator that could handle the large number of IBM IMS calls required by the system. Norton's Information Systems and Services Department employs an IBM 3083 mainframe running IBM's MVS operating system with an IMS data base.

The search boiled down to a choice between Informatics, Inc.'s Mark V nonprocedural language compiler and application generator and Telon-IMS, an application development system from Christensen Systems, Inc. of Quincy, Mass. Although the products offered nearly equal performance, one overriding factor led Norton to become one of the first users of Telon: "It generates compiled Cobol code," said Bill Serovy, lead programmer/analyst.

"At the time, we had brought in a lot of new applications, and the last thing we wanted was something that added to the burden," Serovy said.



CW Photo by P. Gillin

Using an application generator, Norton Co. lead programmer/analyst Bill Serovy (center) and systems analyst Patty Burison produced a prototype for a major application at the company's Abrasives Division in less than two months. The project would not have been started without the tool, according to Product & Market Development Manager Roger Burman (left).

The department was also reluctant to ask programmers to learn a new language, which would have been necessary with Mark V.

"With Telon, there are 20 people you can call to help you with a piece of [Cobol] code," he noted. "Everybody can potentially use this product quickly."

Norton brought in Telon in February. Although only two analysts were working on the project, they were able to put together a prototype, including about 20 screens, within two months. "It worked extremely well as a prototyping tool," said Patty Burison, systems analyst.

In the programming stage, Telon saved "a lot of the 'grunge' work of writing call programs for IMS/DC," Serovy explained. "In a Cobol program running IMS/DC, there's a lot of chattering going on to make the application look like IMS. What you often end up doing is ripping up another program and copying the calls out of it. Telon generates those calls automatically."

Burison added that Telon's screen design aid eliminated much of the polishing that is often required after a screen has been designed in Cobol. "A lot of screens that look good on paper don't look so good on the screen," she said. "The screen design aid lets you type up the screen the way you want it, and then Telon generates the code that's needed."

Because Telon generates compiled Cobol as the application is being run, it encourages programmers to perform continuous tests, she said. "You can be processing, hit a PF [programmed function] key and go into a dump of the program," she said.

Serovy added, "You can see and change anything in storage while the program is running. You can even spot data errors."

In addition, the prototyping features of Telon have allowed analysts to bypass many of the design steps that were once necessary, according to Roger Burman, manager of product and market development in Information Systems and Services. "We were formerly a very formal department," he said. "We did detailed design and implementation. Now we can't do that because the requirements change so fast."

However, Telon has failed to provide all the hoped-for solutions. "That test facility we were raving about works considerably differently from the IMS production environment," Burison said. "Telon tests as one big load module, but in a production environment, there are a half-dozen load modules. Once you're in the production system, you can't back up into test again."

As an alternative, the department is testing sections of individual applications with Telon and then testing with IBM's Batch Terminal Simulator, which more closely resembles a production environment. But the arrangement has been unsatisfactory, according to Serovy.

Although Telon effectively generates IMS/DC calls, it has major problems with IMS/DB calls, Serovy noted. "To boot, it assumes that anything you ask to get from the data base is there. If it's not, it abends," he said. As a result, programmers have taken to writing their own IMS/DB calls and inserting them into the compiled code, Serovy said, a process which adds about 30% to the time needed to generate an application. The problem has thwarted the department's aim of enabling a programmer without IMS knowledge to use Telon, he said.

Correction

In Werner L. Frank's "Why Have a Micro-Mainframe Connection?" [CW, July 4], the Pcox interface was referred to as a Forte Data Systems, Inc. product. Pcox is from CXI, Inc. of Cupertino, Calif.

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Compatible With System III

DG Adds Unix for MV Superminis

WESTBORO, Mass. — Data General Corp. last week unveiled e version of the Unix operating system for its entire Eclipse MV family of superminicomputers.

Called Sphinx, the software reportedly is derived directly from Bell Laboratories' System III version of Unix and is said to be compatible with that system in its form, content, interface and documentation. Sphinx is integrated with DG's 32-bit AOS/VS operating system for use with the Eclipse MV systems.

Sphinx includes the majority of the commands, system calls and libraries of Unix System III, DG said. Its features include access to the Source Code Control System and high-level AOS/VS programming, the vendor noted.

In addition, Sphinx encompasses a Unix capability called "pipes and filters." A pipe is e command string that enables data to be transformed or filtered between programs.

Usera Choose Environment

The integration of the Sphinx environment with DG's native operating system enables users to choose the environment best suited for their application, according to DG. Among the benefits of this approach that the vendor cited are access to all communications software, compilers and DG office and commercial softwere; access to nearly ell Unix applications with few modifications, end eccess to the Ada environment as well as DG's technical software.

A standard Unix environment will be transparent to Sphinx users. Sphinx commands and utilities can be invoked either from the Sphinx "shell" or the AOS/VS Command Line Interpreter, the vendor said.

The AOS/VS C compiler is included with Sphinx and reportedly provides a complete implementation of the C language. The Sphinx product, incloding the C compiler, installation, 90-day comprehensive support services and one-year software subscription service, is priced as follows:

- $9,845 for 16 users.
- $14,845 for 32 users.
- $20,845 for 64 users.
- $27,845 for more than 64 users.

Further information on Sphinx can be obtained by contacting Deta General, 4400 Computer Drive, Westboro, Mass. 01581.

IBM Earnings Climb 25% In Quarter

By Bill Laberis
CW Staff

ARMONK, N.Y. — Reeping the benefits of more eggressive penetration ecross broader market segments, IBM last week reported second-quarter earnings of $1.34 billion, or $2.22 per share, up 25% over the same period a year ago when earnings of $1 billion or $1.81 per share were reported.

Revenues jumped 19% to $9.6 billion from $8 billion in the second quarter last year. The percent increases in both revenues and earnings outpaced the gains registered in IBM's first quarter and gave further proof of the company's strengths in virtually ell market areas in which it competes.

The strong bottom-line figures also reflect IBM strategy to promote equipment purchases at the expense of rentals by systematically raising lease prices while lowering the purchase price of certain product lines. Income from rentals in the quarter fell more than 16%, while income generated by eqoipment sales leaped more than 48%.

Revenues from IBM's service operetions, which comprise about one-fourth of the company's total business, grew 19% in the quarter.

IBM said thet worldwide shipments are outpacing the record-setting shipments of 1982 "by e good mergin." In particular, the company cited strong shipments of its 3380 disk drive end 3080 series mainframes, the latest model of which, the 3084, began shipping in April.

Sales and shipments of displey products, including the 3278 and 3279 terminals and the newly announced 3178, continued strong, IBM said. Sales of IBM's Personal Computer, meanwhile, "continue to exceed projections."

Prime Tops Off Its 50 Series of Superminis

(Continued from Page 1)

The 9950 uses the firm's Primos operating system and is hardware- and software-compatible with all Prime 50 series systems, the vendor said. Users of any 50 series processor can upgrade to the 9950, the spokesman noted.

The 9950 can function as a standalone processor, but is equipped to act as a host system in a Prime or multivendor distributed processing network. It can also be used as a back-end or front-end processor, offloading a central mainframe.

The 9950 includes up to 16M bytes of error-correcting main memory and 16K bytes of high-speed bipoler cache memory thet reportedly reduces memory access time to about 84 nsec.

The 9950 system chassis can accommodate additional memory, a peripheral subsystem, asynchronous line controllers, a multiline data controller for synchronous communications or the Primenet Networking Software Node Controller for high-speed local nets.

The system has a diagnostic processor that monitors the integrity of the system microcode end memory and allows a remote Prime customer-service representative to isolate and diagnose system-level faults, the apokesman said.

The basic 9950 package includes 4M bytes of main memory, e 300M-byte disk drive, a 75 in./sec tape drive, a system console and Primos operating system software. This configuration costs $392,500.

Add-on memory, packaged in 2M-byte boards, is priced et $15,500.

The price changes announced last week for the 50 series family include:

- A reduction of 6% to 8% in the cost of the Model 750, which now ranges in price from $196,000 to $296,500.
- Discounts of 15% to 21% for the Model 850 supermini, placing it in the $273,500 to $389,000 range.
- Reductions of up to 25% for its 512K- and 1M-byte memory boards.

Pricing for the mid-range 450-II and 550-II and for the low-end 250-II and 2250 remains unchanged.

Prime is located at Prime Park, Netick, Mass. 01760.

Two Subsystems Also Bow

NATICK, Mass. — Along with the announcement last week of its top-of-the-line 9950 superminicomputer, Prime Computer, Inc. unveiled the Intelligent Communications Subsystem (ICS2) for its 50 series of superminis and a magnetic streeming-tape subsystem for the low-end Prime 2250 minicomputer.

The ICS2 is said to provide efficient connectivity for e large number of user terminals. It requires only a single I/O alot in any 50 series chassis to support up to 64 asynchronous communications lines, compared with the four I/O slots previously required for a comparable level of support. The three remaining I/O slots may be used to connect additional peripherals, according to Prime.

The base ICS2 subsystem supports 16 commonications lines and adds additional lines in foor-line increments. It is priced at $9,600.

A fully configured subsystem supporting 64 lines costs $19,250.

Designed for the 2250 mini, the new magnetic streaming tape subsystem can be used for archivel storage, as e backup for Winchester disk drives or program load and data interchange. The subsystem offers two densities and three operating speeds: e 1,600 bit/in. density with speeds of 25 in./sec or 100 in./sec; and a 3,200 bit/in. density et 50 in./sec.

The tape subsystem also offers an autoload feature end incorporates e set of selectable diagnostics that reportedly identify faults and increase the serviceebility of the product.

Prime's magnetic streaming tape subsystem, including cabinet and controller, is priced et $11,000. Add-ón subsystems are priced et $6,500, according to a spokesman for the vendor, located at Prime Perk, Natick, Mass. 01760.

NSF Gets Double the Money It Sought

By Jeke Kirchner
CW Washington Bureau

WASHINGTON, D.C. — President Resgan last week signed into law e bill that almost doubles the amount of money the National Science Foundation (NSF) hed requested for science education, an activity with a strong emphasis on computer and telecommunications technologies.

The legislation, part of a large multiagency spending bill signed last Tuesdey, contains $75 million for fiscal 1984 for this NSF education program, $36 million more than the edministration had requested. The House of Representatives Appropriations Committee called the additional emount a "down payment" on the many programs to increase science and technology education now working their way through Congress.

The fonds are needed, the committee said, because "e new, strong science education thrust is an absolute necessity if this nation is not to be faced with the apecter of pervasive science illiteracy." The panel recommended that the additional monies be earmarked for precollege teacher training, science education and programs boosting women and minority science education end minority participation in science.

Calling the increase "substantial," Dr. Dorothy Deringer, en NSF program edministrator, said the agency will take two or three months to decide how to divide the added funds among its programs. She noted the final amount was not settled on until right before Congress passed the bill late last month and said spending plans "are presently under negotiation" within NSF.

She did say, however, that two precollege programs that encourage a variety of computer science and DP/telecommunications activities within education will benefit substantially from the windfall. These two, a program for developing new teaching materials and an honors workshop program for teachers, will receive $34 million in fiscal 1984, $14 million more than NSF had originally requested.

In the materiels development program, NSF encourages grant solicitations in a number of areas releted to science and math education, including, Deringer said, "unique and innovetive" ways to use computers and telecommunications for science end technology training.

Deringer said, "there is e concern here that we want to be as flexible as possible in defining new areas" for grant proposals. But she suggested that en example of new programs the agency might be asked to support in coming years is in the area of computer and telecommunications engineering at the precollege level.

She added thet, in general, NSF tries to support development of tools for science and technology education end said the agency spent $2 million on the Logo programming language. in the area of teacher development, she noted that "teachers ... for the most part are not computer scientists" end could use NSF funds to develop their teaching skills in high-technology subjects.

Study Reviews 34 Data Management Products

By Lois Paul
CW Staff

STAMFORD, Conn. — IBM's Application System (AS) is one of 34 software products whose features and capabilities are reviewed in the 1983 edition of "Data Management Decisions" from Real Decisions Corp. (RDC).

The study found that an increasing number of data base management systems are becoming capable of supporting end-user computing and the needs of information center users. This finding "clearly parallels the widespread acceptance of the information center concept and emphasizes the central role played by the data management system in the implementation of the information center," RDC said.

The researchers cited IBM's AS as an example of this type of end-user-oriented, multifunctional data management product. Having used AS on IBM's Information Network, the researchers described it as "a relational system offering a broad range of capabilities in a well-integrated manner."

RDC views AS as a strong offering from IBM for the information center and expects it to compete effectively with fourth-generation languages and data management systems such as Mathematica Products Group, Inc.'s Ramis II; National CSS, Inc.'s Nomad2; and Information Builders, Inc.'s Focus.

Of the 34 systems analyzed in "Data Management Decisions," nearly 75% support relational data structures. According to RDC, the fact that 65% of all systems support multiple structure types (network and hierarchical) indicates not only the dynamic structural flexibility of the relational model, but also that several of the older systems are adding relational capabilities. An example of an older system adding relational functions is Mathematica Products Group's Relate, an optional module that can be used for the relational manipulation of the vendor's Ramis II files.

Although only a few of the systems included in the study describe themselves as fourth-generation languages, the researchers cited a definite trend toward the addition or interfacing of multifunctional software modules to existing data management systems. Graphics is the most popular added function, the study found, with 65% of the systems reviewed offering a fully integrated graphics capability or a custom interface to a specific graphics product.

Another popular added module is a financial modeling language. Over half (53%) of the systems analyzed in the report can be interfaced directly with this type of software. For 17 of the 34 systems included in the study, RDC has provided the procedures and costs associated with the performance of a benchmark problem set that encompasses a variety of data management tasks. There was a wide variation from system to system in the CPU costs associated with performing the benchmark problem set, the researchers noted.

The 750-page "Data Management Decisions" costs $995 and includes an update that will be issued during the fourth quarter. RDC is based at 123 High Ridge Road, Stamford, Conn. 06905.

IBM to Sell 'AS' To Info Centers

(Continued from Page 1)

column titles, field output formats, field totaling, color and font, data validation rules, input transformation rules and user display panel name. Dictionary information is presented to the user through four display panels that permit dictionary data to be updated directly, the vendor noted.

The full-screen display facilities included in the new release of the software present user data in tabular fashion to facilitate data entry, change and browsing, according to IBM. Two new commands, CHANGE and VIEW, are intended to simplify presentation and alteration of user data.

The new release of AS (and VM/AS) also comprises resource analysis, as well as time analysis facilities, and includes batch capabilities. In addition, the software includes support for remote IBM 6670 information distributors.

VM/AS carries an initial license charge of $50,000. The monthly license fees are:

- $1,600/mo for up to and including 15 concurrent, signed-on terminal users.
- $3,100/mo for up to and including 30 concurrent, signed-on terminal users.
- $5,000/mo for up to and including 60 concurrent, signed-on terminal users.

The minimum configuration required to run VM/AS is an IBM 4331 Model Group 2 with 4M bytes of real storage, 500M bytes of direct access storage device storage, a system printer, a magnetic tape unit, a 3278 console display and IBM 3278 Model 2, 3 and 5 or IBM 3279 Model 2 and 3 terminals attached locally or remotely.

Further information is available from IBM at 1133 Westchester Ave., White Plains, N.Y. 10707.



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Experts Raise Red Flag About Floppy Security

(Continued from Page 1)

contain more sensitive information than a company's main computer system because, as Campbell pointed out, many top corporate executives now use microcomputer spreadsheet packages to perform highly sensitive strategic analysis and product planning functions.

In addition, microcomputers are often used as word processors and, therefore, could yield a wealth of corporate secrets.

Policies Postponed

Rushing to meet the mushrooming demand for micros, many corporations have either ignored or postponed the development of policies on microcomputer use. For many, the result has been uncontrolled software development, plus a lack of a clear understanding of how and where data is being stored.

Both Campbell and Ed Devlin, president of Devlin Associates, Inc. in King of Prussia, Pa., another security/disaster recovery consulting firm, said that in recent weeks, several large corporations have sought advice on how to develop a more secure environment for microcomputers. Neither Campbell, Devlin nor Jerry Isaacson, director of the Educational Resource Center with the Computer Security Institute in Northboro, Mass., knew of corporations that have already instituted security policies for micros.

That is no surprise to Robert Zant, professor of business computer information systems at North Texas State University in Dallas, who equated controlling micros with trying to govern how each employee handles the paper on his desk. But Zant believed that accessibility to microcomputer data is a far greater threat than accessibility to a company's paper files.

"Fewer people have home Xerox [Corp.] machines than home computers," Zant said, noting that an unscrupulous employee could walk out at 5 p.m. with a floppy disk in his briefcase, make copies of the disk on his home computer and return the stolen floppy the next day.

One way to prevent the theft of floppies, Campbell suggested, is to hide signaling devices in plastic disk jackets, similar to the security devices used in department stores. This would stop people from smuggling floppies out of the company, but it would not stop someone from smuggling an unprotected floppy into the company and copying classified company information on-site. Nor would it protect floppies from being misplaced within the company or from natural disasters.

Another Solution

Another solution, Isaacson said, is to develop tight control over who uses micros and what happens to data after it is created. For example, employees could be required to turn in all floppy disks at the end of a working day. The disks would then be locked in an area safe from theft or natural disaster.

But the imposition of tight control over corporate micros, especially if the control is dictated by the DP department, may not be well received by employees. Zant noted that the concept appears to run counter to the original intent of micros, which is to provide a vehicle that allows employees to be more efficient through self-structured programs and filing systems.

At this point, no clear solution to the microcomputer security question is apparent. The best defense against theft and disaster is to inform employees that the data they have created may not be safe — a fact, Isaacson said, most users do not realize.

Furthermore, according to Campbell, employees should be told how vulnerable the data in their micros can be. Employees should also be trained to protect their systems by encoding or destroying sensitive data and taking care in storing floppy disks.

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Comten Users To Meet Oct. 3 In Windy City

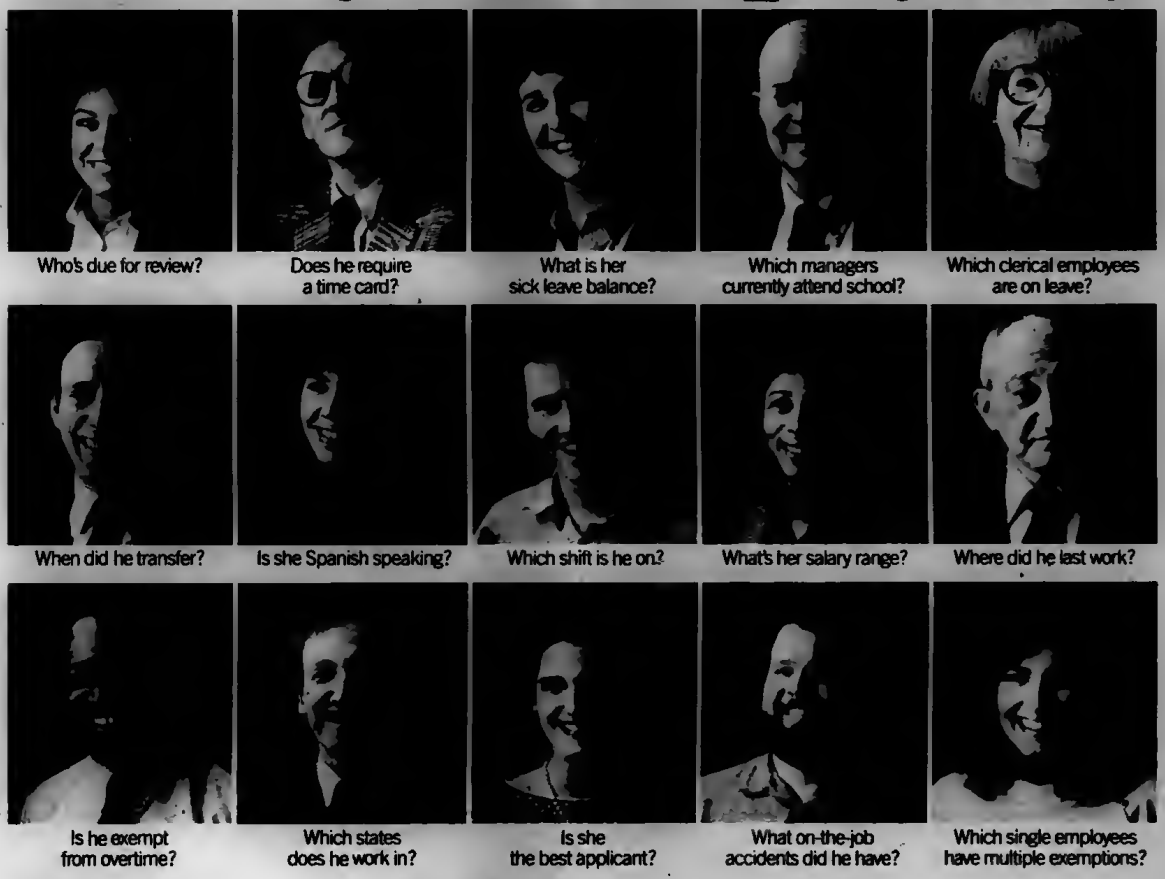
CHICAGO — The 21st Comten Users' Exchange (CUE), scheduled Oct. 3-7 at the Hyatt Regency here, will include keynote addresses on public data networks and satellite communications.

On Thursday, Oct. 6, keynote speakers Paul Wickre, marketing representative for Uninet, Inc., and Mike Sanaco, vice-president of western operations for Telenet Computer Corp., will address the topic of public satellite networks for the '80s. Additionally, satellite communications will be addressed, followed by a session titled "Local-Area Network: Intra-City Wideband Distribution."

Other presentations will cover network design philosophies, communications hardware, trunk capacity planning, network problem determination tools and pre-Systems Network Architecture (SNA) to SNA migration experiences.

The cost of the conference is $100 per day or $225 for the full five days. More information is available from Anne Madison, CUE Liaison, NCR Comten, Inc., 2700 Snelling Ave. N., St. Paul, Minn. 55113.

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Despite Explosive EFT Growth

Study Cites Lack of Hard Data on EFT Crime

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — Despite the explosive growth of electronic funds transfer (EFT) systems, EFT crime — widely perceived as a potentially disastrous threat to corporate integrity — remains a largely uncharted area of the larger world of computer crime.

Given the lack of hard data on the incidence of EFT crime, a study prepared for the U.S. Department of Justice has recommended that a national panel of banks be created to provide a reliable source of information on the subject.

Public Systems Evaluation, Inc. of Cambridge, Mass., which prepared the study for the Justice Department's Bureau of Justice Statistics, evaluated a number of existing data sources and found them unsatisfactory for gauging the extent of the EFT crime problem. In particular, the firm investigated the SRI International, Inc. file on computer crime compiled by Donn Parker and Susan Nycum, reports filed by financial institutions with federal regulators, files on federal bank crimes kept by the Federal Bureau of Investigation and a study on financial fraud conducted by the American Institute of Certified Public Accountants (AICPA).

This is the second installment of a three-part series on publications dealing with computer crime recently issued by the U.S. Justice Department. This week, Computerworld *examines the growth and the potential threat of electronic funds transfer systems.*

Next week: The data processing professional as expert witness.

All of these sources, the study said, were lacking in some respect. It noted that the SRI file was not compiled with EFT crime as a central focus, and federal financial regulators' files are limited to internal crime. FBI crime reports do not specifically identify EFT crimes, and the AICPA study produced only a sampling of all such crimes, according to the Justice Department report.

However, Public Systems, after scrutinizing these resources, reviewing the available literature on EFT crime and conducting interviews in the production of its study, said it developed the following impressions on EFT crime, although the firm advised they "are not based on rigorously acquired facts or data":

- Although the precise level of computer-related or EFT crime is unknown, "EFT crime is still only a small portion of all crimes at financial institutions."
- Automated teller machine (ATM) fraud "appears to be at least no worse than it might have been if the same transactions were conducted in a purely paper-based system."
- Although increased automation will probably lead to more consumer-related EFT crimes, "the actual magnitude of any particular crime will generally be small because of the nature of the technology and the imposition of transaction limits."
- "Consumer frauds, such as overdrafts or bad checks, might be reduced by the use of consumer EFT technologies which provide for an electronic check of the assets held in any account. EFT also reduces the need to physically transfer financial assets, removing the opportunity for crimes such as personal and armed robbery."
- "Although the actual level of corporate EFT crime to date is probably small, the potential for such crimes is high because of the extremely large dollar volumes transferred each day."
- Although technology may reduce some crimes, such as burglary and larceny, "the magnitude of a few specific EFT crimes has been very high, particularly in the corporate EFT area, indicating a special vulnerability."

The study developed a definition of EFT crime in the areas of corporate, consumer and internal EFT based on existing technologies, including ATMs; point-of-sale terminals, telephone banking services, automated clearinghouses and cash management services.

The study looks at the crime problem in terms of five overlapping areas of EFT components: the EFT hardware itself, software, the internal procedures of day-to-day financial EFT system operations, the external procedures used by customers when using EFT systems and, finally, "any other behavior or action related to the presence of EFT."

In general, the study said, a broad definition of EFT crime would embrace "any crime, whether prosecuted or not under traditional or special computer/EFT laws, that would not have occurred but for the presence of an EFT system."

The report goes on to suggest a number of ways to evaluate EFT crime data, but found existing data capture methods "are not detailed enough, not independently compiled, not based on a statistically valid sample and not equivalent." Because of this "dearth of existing EFT crime data," the study recommended "that a national panel, or sample, of banks be established to provide an ongoing source of information on EFT crimes."

Noting that many issues must be resolved before such a panel can be set up, the study said that "in much the same manner that A.C. Nielsen Co. rates different television programs based on data collected from a national panel of some 1,200 households, the EFT crime problem could be estimated based on data collected by an 'EFT crime panel' of a limited number of financial institutions."

The report, "Computer Crime: Electronic Funds Transfer Systems and Crime" (PB83-159-079), is available from the National Technical Information Service, Springfield, Va. 22161. The price is $13.50.

Commerce Seeks Comments On Going Metric

WASHINGTON, D.C. — The U.S. Commerce Department is seeking comments on a preliminary plan for converting data processing and office equipment manufacturing to the metric system.

The document, "Changeover Guide for Data Processing/Office Equipment," was developed by Commerce's Office of Metric Programs and the American National Metric Council as a first step toward a metric transition plan for the industry.

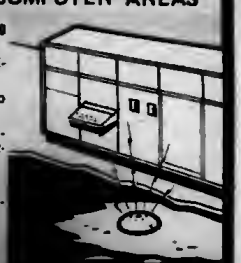
Copies of the document are available from Robert J. Peterson, program manager, Data Processing/Office Equipment Sector Committee, American National Metric Council, 5410 Grosvenor Lane, Bethesda, Md. 20814. Comments, which are being sought from industry, trade associations and goverment agencies, should be submitted to the same address by Aug. 31.

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Radiation Hazards 'Highly Unlikely'

NAS Finds No Proof of VDT Eye Danger

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — The National Academy of Sciences reported last week that it could find no scientific evidence linking the use of visual display terminals (VDT) with eye damage or disease, including cataracts.

"There is nothing in the literature on the effects of working with VDTs, or in the broader realm of existing scientific and clinical knowledge, that suggests that such a causal relationship is likely," said the report of a special panel of the National Research Council. The council, the operating arm of the National Academies of Sciences and Engineering, was asked in 1981 to undertake the study of VDT safety by the National Institute for Occupational Safety and Health.

The study focused on physical and ergonomic aspects of VDT use, questions of standards for VDT design and use and comparisons between VDT-based and similar work tasks. While the panel concentrated on vision and VDT use, it also referred to fears that VDT radiation is harmful to users.

Based on the levels of VDT radiation and existing information on the harmfulness of various radiation levels, the panel said that "radiation emitted by VDTs under conditions of normal operation and under conditions of malfunction or aging of the VDT are highly unlikely to be hazardous." The report concluded that "these considerations suggest that routine radiation surveys of VDTs in the work place are not warranted."

The panel added, however, that new VDT models should be monitored for radiation to ensure that product safety standards are met.

'Poorly Designed Surveys'

In its report, released last Monday, the 12-person panel, representing the fields of vision, psychology and engineering, noted that recent surveys indicate VDT users suffer more vision and muscle strain and job stress problems than workers in comparable but non-VDT environments. "Most surveys, however, have been poorly designed, and the inferences that may reasonably be drawn from them are suggestive rather than conclusive. Surveys have not established whether complaints and reported symptoms are related to VDT characteristics, other aspects of the work place and job situation or some combination of these factors."

Physical problems attributed to VDT use "might be more directly related to characteristics of the work situation — that is, the way in which VDTs are used — than to characteristics inherent in VDTs." Furthermore, the panel said, symptoms of vision problems reported by some VDT users "appear to be similar to symptoms reported by people performing other near-visual tasks."

The report added, however, that "poorly designed VDTs, workstations and work tasks often produce a particularly problematic concatenation of adverse features.

Turning directly to fears of a relationship between VDT use and eye disease, the panel stated: "We find no scientifically valid evidence that occupational use of VDTs is associated with increased risks of ocular diseases or abnormalities, including cataracts." It reached the same conclusion regarding damage to the visual system, saying such a link is unproved and unlikely based on existing scientific and clinical knowledge.

The panel cited a need for research data on which to base standards for display, lighting and workstation parameters and for task design and work schedules in VDT-related work. Such data does not exist now, the panel said, adding that in the meantime, "application of well-established principles of good design and practices can be expected to reduce the incidence of complaints of work-related physical symptoms and stress and to enhance the comfort and performance of workers."

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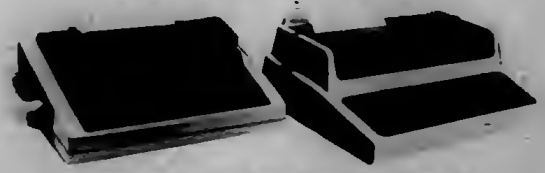
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Ties Clients to Software House

Quest for Micro-Mainframe Link a Success

By Lois Paul
CW Staff

CHICAGO — A software house that went shopping for a micro-mainframe link about a year and a half ago found that the only viable and immediately available solution combined microcomputer processing with mainframe data base capabilities.

Local Computer Systems, Inc. looked at "everything we could put our hands on" that promised micro-mainframe linkage, Vice-President John Grey recalled. "Everyone could tell us conceptually where they were, but we had existing needs, existing customers."

Grey's group then went to Austin, Texas, for a demonstration of Intel Corp.'s Intel Database Information System (Idis 86/375), a Microsoft, Inc. Xenix-based microcomputer that supports micro-mainframe uploading and downloading of data and includes local data base and other processing capabilities.

Grey was satisfied that the Idis system could communicate with mainframes and also that the Idis micro itself had a large enough capacity (35M bytes of hard disk) to handle processing when data was downloaded for the mainframe. The system's multiuser and multitasking capabilities were the final selling points.

"We decided to go with Intel for distributed processing. That was the main thing on our mind," Grey explained. His firm ordered 50 Idis systems and installed the first six at customer sites last January.

Local Computer Systems develops software for the insurance and third-party investment industries. This involves advising clients on what hardware to purchase and developing customized interfaces and applications for this equipment on a turnkey basis.

In some instances, clients communicate with Local Computer Systems' in-house Burroughs Corp. 5900 processor via telephone lines. By January 1982, the firm and its customers began "suffering" from slow, inefficient telephone communications, and distributed processing seemed to provide the solution to these problems, Grey said. The advent of low-cost microcomputers made this alternative economically feasible. What Local Computer Systems still needed was a system that could handle the micro-mainframe communication problem.

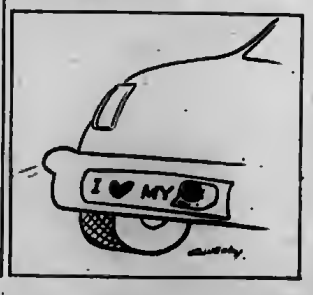
Today, Local Computer Systems is using the Idis system to support distributed processing applications for its customers, including claims processing, policy issuance and customer service. "The biggest area in which we see a use for it is what we call agency communications," Grey said. About 20% of the agencies in the insurance business typically handle about 80% of the business. Using the Idis connected on a distributed basis, the overloaded 20% can extract the information that is pertinent from the mainframe, process it on the Idis and send back the results.

Grey's group has done some benchmarking of the Idis' performance. They found that actuarial data which would have taken 20 minutes to process on the mainframe can be processed in about 30 minutes on the Idis. "On most micros it would have taken five to six hours," Grey noted.

Local Computer Systems is not a user of Intel's System 2000 data base management system, which is an Idis option, and neither are the majority of its clients. Instead, Grey's group has developed interfaces to a variety of data bases for its customers.

In addition, Local Computer has connected the Idis systems to IBM mainframes as well as equipment from Burroughs and other manufacturers. Grey said his group takes advantage of IBM 2780 and 3780 protocol and teletypewriter pass-through support that is provided by the Idis.

Local Computer Systems already had decided to standardize on the C language and on an operating system based on Unix before converting to the Idis system, which is based on C and the Unix-like Xenix operating system. However, Grey foresees some problems when smaller, less sophisticated users move to the Idis because the C language is "rather cryptic and mathematical in its approach," Grey said. "Something is going to have to be done to fill that niche to make C more useful to the smaller business applications people. They will not be able to handle C, in our opinion."



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International Report

FROM THE CW INTERNATIONAL NEWS NETWORK

AUSTRALIA

MELBOURNE — Because of financial difficulties, International Harvester Australia Ltd. will enter a shared computer resource contract with Idaps Computer Science Ltd. International Harvester hopes to cut its annual data processing costs by one-third, almost $1 million.

MELBOURNE — Australian Prime Minister Bob Hawke will kick off the Tenth Annual Australian Computer Conference, set to take place here Sept. 26-30. This will mark the first appearance of a prime minister at the computer show.

MELBOURNE — A preprocessor that acts as a buffer between Relational Software, Inc.'s Oracle relational data base management system and Cobol has been developed here by Praxa Pty. Ltd. The product, called Orint, is reportedly heavy on computing time and still lacks maturity. According to one of Orint's designers, Jay Ondracek, "Orint is intended to serve as an interface between Oracle and Cobol and prevent excess coding caused by Oracle's idiosyncrasies."

BRAZIL

RIO DE JANEIRO — After postponing its release earlier this year, Cobra will this month launch its largest system to date, the C-540. A member of the 500 family of minicomputers, the C-540 comes with 1M byte of main memory and supports up to 64 terminals, 768 bytes of disk storage and printers with speeds up to 1,250 line/min. The delay of the announcement was blamed on the devaluation of the Brazilian cruzeiro.

BRASILIA — The first Informatics Symposium of the Federal Senate has reportedly accomplished its objective: to obtain the congress' support for a national policy on information processing. Speeches made at the plenary session focused on achieving a cohesive Brazilian industry and retaining government funding.

BRASILIA — Although Secretary of Informatics Joubert Brazida said that no external pressures have influenced Brazil's policy of government funding of microcomputers and minicomputers, Edson Fregni, vice-president of Abicomp (the Brazilian computer association), claimed "a reaction against the market funds has developed at the American Department of Commerce, and we need to be prepared for this." During World War II, Fregni said, the Brazilian industry was forced to stop producing large numbers of small aircraft because of external pressures.

RIO DE JANEIRO — Abicomp, the Brazilian computer association, is pushing for special classification for utility software and operating system software under the Special Department of Informatics' (SEI) newly established Software Register. Executive Secretary of Abicomp Ricardo Saur argued that operating system and utility software must be differentiated from application software. Abicomp also proposed that the Software Register be directed by Abicomp members as well as SEI members.

FRANCE

PARIS — The IBM Personal Computer is meeting with limited success here, according to IBM watchers. Since the product's introduction in France five months ago, only about 100 have been sold. Analysts blame the micro's limited appeal on its high price and its inability to use French vendors' peripherals. In addition, a large amount of system memory is required to convert the American Qwerty keyboard into the French Azerty so that nonrelocatable programs are unable to run on the French Personal Computer.

GRENOBLE — While Microsoft, Inc.'s MS-DOS is widely considered a standard operating system for 16-bit microcomputers here, Digital Research, Inc.'s CP/M 86 operating system is reportedly growing in popularity. Symag Co., which served as the European beta test site for the Digital Research software, contended that CP/M 86 is far more powerful than MS-DOS 2.0. The fact that CP/M 86 is now available on Motorola, Inc. 68000-based microcomputers is seen as further confirmation of the growing acceptance of CP/M products on the 16-bit scene.

JAPAN

TOKYO — Twenty percent of CJK Co. Ltd., a Japanese distributor, has been purchased by the U.S.' Datapoint Corp. The president of CJK, Mitsuhiro Murakami, said that his company will help Datapoint in product development tailored to Japanese users' needs.

TOKYO — Fuji Xerox Co. Ltd. has unveiled its 1100 Scientific Information Processor (SIP), reportedly capable of running high-level programming languages such as Xerox's Interlisp-D for developing so-called expert systems, as well as Xerox's Smalltalk-80. The 1100 SIP comes with 1.15M bytes of main memory, a 17-in. bit-mapped display, keyboard, a mouse interface and Interlisp-D. It ranges in price between $76,000 and $89,000. Smalltalk is priced separately at $6,000.

TOKYO — NEC Corp. breathed new life into its PC-6001 line of microcomputers — said to be the most widely used home computers in Ja-

(Continued on Page 16)

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Tuesday, July 26	Minneapolis/St. Paul	L'Hotel Sofitel
Wednesday, July 27	Chicago	Whitehall
Thursday, July 28	Detroit	Renaissance
Tuesday, August 2	Atlanta	Waverly
Wednesday, August 3	Philadelphia	Marriott
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International Report

(Continued from Page 15)

pan — when it recently unveiled the Model PC-6001 Mark 2. The Mark 2, which adds features like voice synthesis and Kanji processing capabilities, is priced from $385.

TOKYO — OKI Electronic Industry Co. Ltd. has introduced a relational data base machine for use with personal computers. The DB-1 system comes with up to 320M bytes of hard disk memory and can be used by up to eight personal computers. The company also announced a local-area network called LX, which can handle up to 254 personal computers located within a 10-km radius. The LX is said to permit communications at 1M bit/sec through pairs of twisted cables.

WEST GERMANY

MUNICH — Werner Brodt, business manager of Micropro GMBH, contends that for every one of the firm's programs sold in West Germany, two or three illegal copies are sold. Brodt believes that the company's Wordstar software, for example, has been sold over 30,000 times illegally, which translates into lost profits of aimost $40 million.

MUNICH — Fujitsu Microelectronics GMBH has claimed that it will capture 5% of the West German computer market within the next two years. To reach this goal, Fujitsu sales manager Klaus Brandt said, the company will price its products at 30% less than its competition.

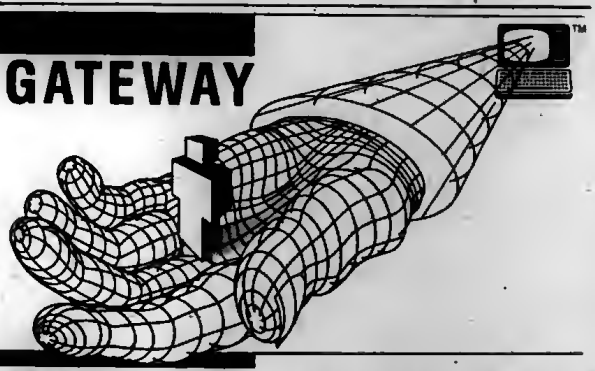
COLOGNE — Siemens of Germany and ICL of Great Britain have been asked by France's CII-Honeywell Bull to cooperate in future product development in order to combat American and Japanese competition. Honeywell President Jacques Stern is said to have asked the Federal Republic of West Germany for more financial support during the opening of a Bull office here.

TAUFKIRCHEN — After establishing itself in Great Britain, France and Japan, Microsoft, Inc. has opened a subsidiary here. Microsoft President Bill Gates said Microsoft's goal is to "meet the requirements of the target country and also conform to the native language." The company has already spent approximately $250,000 to convert its Multiplan software for German users.

MUNICH — Digital Equipment Corp. has opened a personal computer store here to sell technical manuals and software documentation. A company spokesman said DEC will continue to sell its workstations only through distributors.

MUNICH — Siemens AG will support IBM's MVS Extended Architecture on its 7.890 CPUs. First shipments are expected in July 1984.

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Security Manager Combines Science, Law Savvy

By Lois Paul
CW Staff

TORONTO — The blending of her study of law with hands-on data processing expertise was the beginning of a successful career path for Marie Ibell.

Watching a friend using punched cards on a duplicating machine at her university's computer center was the unlikely spark that ignited Ibell's interest in data processing while she was still a law student in the UK.

Armed with her law degree, she pursued a degree in computer science and has combined the two areas in her current position as manager of information security for the Hudson's Bay Co., a conglomerate here that is involved in businesses as diverse as retailing, oil and gas and furs.



Marie Ibell

After emigrating to Canada in 1969-70, she worked her way through the DP ranks from programming up, garnering experience in the banking, insurance and manufacturing areas. Ibell's goal was to "get everything under one umbrella and hopefully go out on my own in some form of computer law, having very broad experience in all of the industries."

Four years ago, she joined Hudson's Bay to work on an inventory control project that would expose her to the retailing aspects of the business — the final piece of the DP-experience puzzle she was putting together. Two years later, however, the firm's management asked Ibell to set up a security system.

"They pinpointed [me] with my DP and my legal background; and, I suppose, being an initiator, I probably was the ideal person for the job," she said.

Hudson's Bay's interest in setting up a security system coincided with the firm's conversion from usage of an outside service bureau to an in-house computer center. Ibell's information security group was established within the company's information center.

Although DP management instigated the need for better security, Ibell did not begin her task with the complete blessing of upper management. "When you are in the security area, it is an upward fight to create that security awareness and to make senior management aware of the threats and vulnerabilities and even to try to get them to realize what is their acceptable level of risk," she said.

Educating Management

To counteract this problem, Ibell later instituted security education seminars to create an appropriate level of security awareness among the firm's management and personnel. "We would run one of those about once a week, once every two weeks, for 10 to 15 people," she explained.

Ibell admitted that when she began her work on setting up the security system, she ideally would have liked to have begun with risk assessment, "but, like everything else, that had to go by the wayside." Her first step was to set up a plan for the area, plotting what her group was trying to achieve over what period of time. This revealed that the "quick and dirty" approach was required, which meant bringing in a security package to limit the risk to the DP environment as quickly as possible.

(Continued on Page 18)

Firms See DP Security as Expense, Not Benefit, Says Law Specialist

TORONTO — Companies tend to look at DP security as a cost rather than a benefit, according to a computer law specialist who now is in charge of information security at Hudson's Bay Co. here.

"Whereas we often hear that crime is escalating and that technology is escalating, security has always remained a poor relative that stays behind," Marie Ibell, manager of information security for Hudson's Bay, maintained. "I still think that it will take a hell of a big disaster before companies start to realize the dependency that they have on their computer and recognize that it should be more secure."

Senior management also is often under the delusion that within the confines of their four walls, they are safe from DP security risks. They do not recognize that "their actual employees are one of their biggest threats."

For example, she said, an employee working on accounts receivable might also have access to the firm's accounts payable, which in itself leaves a big security loophole and an accompanying risk. In addition, computer operators often have access to some of the most sensitive data in the company.

"You have become completely vulnerable," Ibell said. "In fact, if you ever wanted to fire those employees, or [if] those employees left or became disgruntled or dissatisfied, then you're at their mercy."

In light of these potential risks, Ibell works on the theory of minimum access, which she defines as "giving them as much as they need to do their job, but the very minimum within the confines of the company." She has managed to implement this theory, despite the fact that Hudson's Bay has an information center that is designed to encourage end-user access to corporate data for reporting and analysis purposes.

Ibell's group uses a hierarchy method that works from a department level down to specific areas within departments. "Somebody in area A under one department may not need the information that somebody working in area B would need, and, therefore, we restrict it. If they do need it for one day, we say 'OK,' but we put a time limit on it," she related.

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Managers on the Move



Walsh



Mueller



Hugo

WILLIAM M. WALSH has been appointed director of data processing for the New York Clearing House Association. He will be responsible for planning, systems development and operations.

Walsh joined Mutual of New York Life Insurance Co. in 1958, then moved to Burroughs Corp. in 1962, where he was branch technical manager in New York City. After a year of management consulting with Booz, Allen & Hamilton, Inc. in 1970, he joined the Federal Reserve Bank of New York, first as officer in charge of the Research Computer Department and later as assistant vice-president for systems services.

In 1976 Walsh became vice-president of data processing and subsequently senior vice-president of corporate services at the Carteret Savings and Loan Association in New Jersey. He then served the Connecticut National Bank in Bridgeport as senior vice-president for data services until joining the New York Clearing House.

Walsh graduated from Franklin & Marshall College with a bachelor's degree in economics.

•••

GERHARD O. MUELLER has been named vice-president and general manager of information processing for General Electric Information Services Co. in Rockville, Md., responsible for the operation, planning and management of GE Information Services Data Processing Services.

Prior to joining GE, Mueller served two years in the U.S. Navy. His initial job assignments were at the company's Knolls Atomic Power Laboratory, where he worked as a reactor physicist and subsequently became manager of engineering data processing.

In 1967 he transferred to the company's information services business division and held several management positions in applications development and customer applications. From 1976 to 1978, he served as manager of the division's European operations, headquartered in Amstelvsen in the Netherlands.

Mueller received a B.S. degree in marine engineering from the State University of New York and an M.S. degree in nuclear physics from Union College.

•••

RICHARD C. HUGO has been named manager of management information systems for GTE Lighting Products in Greenland, N.H. He is responsible for planning, coordinating and developing data processing and information systems.

Hugo joined GTE in 1966 and held a number of scheduling, planning, materials control and data processing posts. Most recently, he was data processing program manager.

Hugo graduated from the University of Massachusetts with a BBA.

Security Manager Combines Science, Law

(Continued from Page 17)

Ibell completed an analysis of five major packages: CGA Software Products Group, Inc.'s Top Secret; Medium Systems Software and Services' Secure; IBM's Resource Access Control Facility; Cambridge Systems Group's Access Control Facility; and EDS Software Products Division's Security Access Controller. She also contracted with an outside consulting company to conduct a similar analysis of the five packages.

"We wanted a package to give us the least impact on our operating system and . . . the best security levels of access and best security methods," she explained. Hudson's Bay's DP shop is 600-people strong and is running two IBM 3081s (Models D and K) under OS with both CICS and TSO. Based on her evaluation, Ibell recommended Top Secret. In line with her policy of limiting access to information that could jeopardize the security of her firm, Ibell would not specify which package was chosen by Hudson's Bay.

Once the selected package was installed, Ibell's group worked to define the firm's data sets, what level of security was required and what access control mechanisms were needed to protect the corporate data.

Ibell's continuing evolution within the DP industry continues to be affected by her legal background. Once she completed the information security project, she was asked to work on strategic planning for Hudson's Bay.

"The company offered it to me because the firm has some legal issues in it, and they thought I would be good for the job. It is something that they need, for we're heading in new directions. I think it will be very fruitful for my career," she said.

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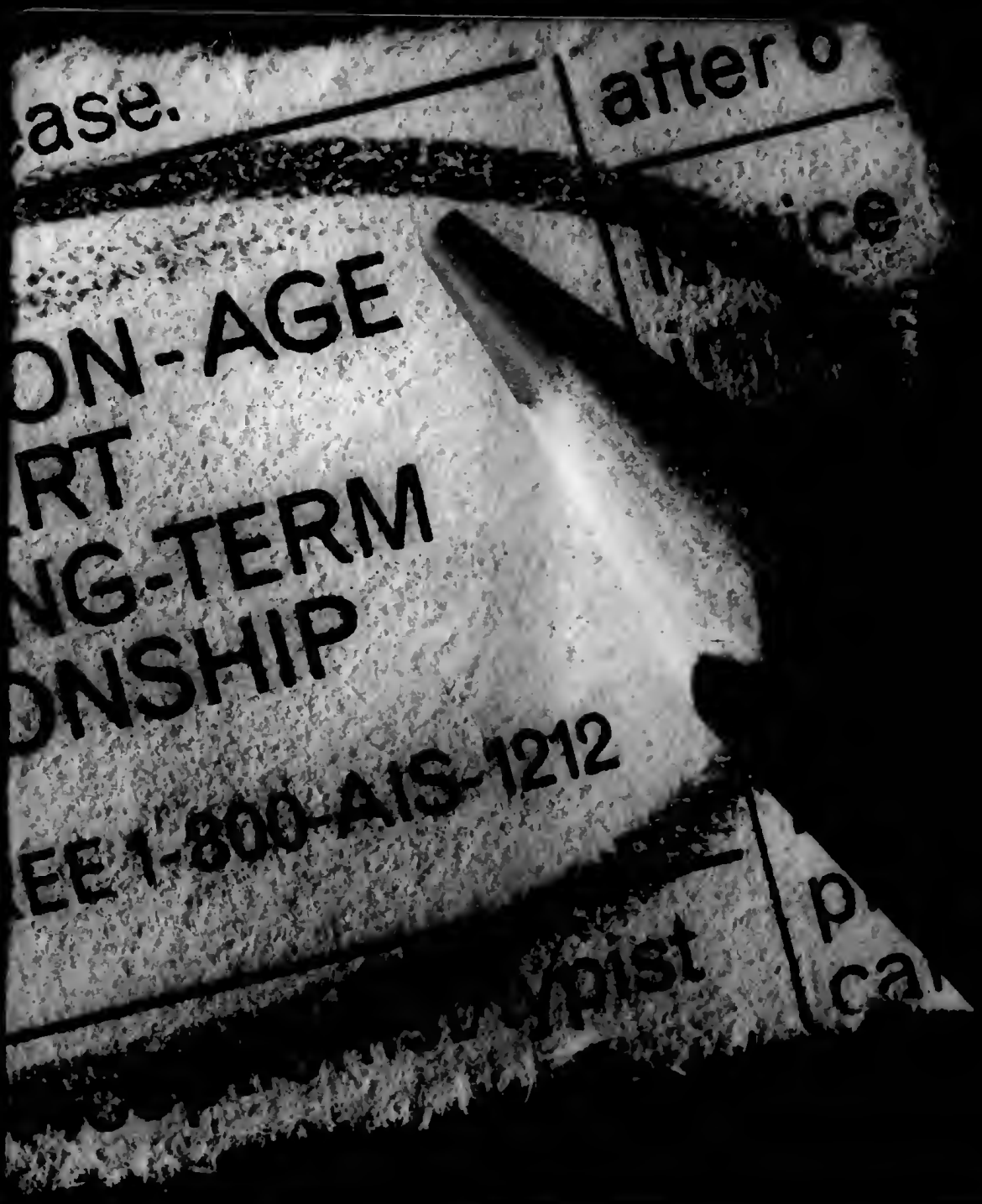
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Attitude, Not Budget, Seen Key to Info Center

By Paul Gillin
CW Staff

BOSTON — If you want to set up an information center and you don't have a lot of money to do it, the best plan may be not to plan at all.

"I'm challenging you to try it even without a budget, without proper support," said Jean L. Chastain, information center project manager at Economics Laboratory, Inc., a manufacturing company based in St. Paul, Minn. "It doesn't take a lot of money. A successful outcome is determined more by attitude than by budget," she told a recent conference here.

Economics Laboratory built a successful information center in stages, making heavy use of existing microcomputers and user enthusiasm to fill manpower needs not available in DP. The evolution began several years ago with the use of external computing.

"This is an excellent way to build a level of interest in the user community," Chastain said. "There are many excellent products out there that are available on time-sharing."

The information center built up rapidly over three years, beginning in September 1980, when the company purchased an Apple II+ microcomputer. "MIS was in a support role at that time to answer DP-type questions," Chastain said. "We encouraged the use of micros and began to educate for the process of internal time-sharing."

In May 1981, DP management, acting on an impulse, bought Information Builders, Inc.'s Focus fourth-generation language to tackle the applications backlog. "It's been very successful," Chastain said.

With the information center concept growing and 25 micros in use around the company, the information center project was started in January 1982. "The first microcomputer person spent nine months on training alone," Chastain said. "There was a huge pent-up demand."

However, the following June, the department suffered "an unanticipated and devastating" budget cut. "There had to be replanning because the concepts and the user demand was still there," Chastain noted.

The information center project team picked up the pieces and started again, using "a low-profile, low-option setup," Chastain explained. The eviscerated team first tried to restart the training program for micro users. "We had three part-time people [working on the information center] and no time for [user] training," she said. "We handed three users a booklet, and it was successful."

Low-Profile Project

Using the low-profile approach, the information center team completed nine projects in the ensuing year in such functions as organization, training and cost accounting, Chastain said. There are now 40 to 45 micros in use in the corporation, as well as nine Focus users and a large base of occasional users of external computing.

Key to the information center's success, Chastain explained, has been a policy of placing "a lot of responsibility on the user to set up training facilities and define requirements." The information center staff provides the manpower to make the users productive, Chastain said.

"The amount of programming we do is very little," she added.

Although operating from day to day for most of the early part of its existence, the information center "has achieved at least partial recognition within the Information Processing Division," Chastain noted. "That was even harder than achieving it in the user community."

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ARLINGTON, Va. — The Fifth Annual National Conference on Management Information Systems — Benefits to Management will be held at the Sheraton Crystal City Hotel here July 24-27, followed by a 1½-day Electronic Media Claims meeting starting July 27. The events are sponsored by the U.S. Department of Health and Human Services' Health Care Financing Administration (HCFA), Bureau of Program Operations.

The conference will focus on successful management experiences, state-of-the-art technology and new ideas and current practices in health care systems experienced by members of the state, federal and private sectors, a spokesman said. The Electronic Media Claims meeting is designed to establish an open dialogue between the HCFA and representatives of Medicare carriers and intermediaries, the national electronic media billing industry, regional office Electronic Media Claims work group members and the MIS conference audience.

The MIS conference fee is $25; conference participants are not required to pay the Electronic Media Claims meeting fee of $15. More information can be obtained from Richard Moss at the Systems Planning Branch of the HCFA, Office of Methods and Systems, Division of Systems Planning and Development, Room G-A-1 Meadows E. Building, 6325 Security Blvd., Baltimore, Md. 21207.

Mainframe Drain Feared

Info Center Keeps Mum, But Users Flooding It

By Katherine Hafner
CW Staff

STURBRIDGE, Mass. — How do you provide a service to end users while maintaining as low a profile as possible?

This sticky problem faces Harold Velie, who runs an information center at Hamilton Standard, a division of United Technologies Corp. in Windsor Locks, Conn.

Velie, manager of systems programming at Hamilton Standard, told attendees at a New England regional IMS Users Group meeting here late last month that his corporation's information center has a waiting list of 100 end users who want to learn how to use Information Builders, Inc.'s Focus, even though "we've never published a document saying we exist.

"If we did," Velie explained, "it would only expand the problem" by producing a drain on the company's IBM 3083 Model Group J processor, which recently replaced an IBM 370/168.

In operation since last year, the information center at Hamilton Standard is a training center and a series of hot lines for end users. The mainstay of the center is Focus, Velie said, although the center also trains people with such host tools as Cullinet Software, Inc.'s Culprit, IBM's A Departmental Reporting System and On-Line Systems, Inc.'s Foresight.

The purpose of much of the end-user computing at Hamilton Standard is to access the firm's IBM IMS data base to gain information for reports and analyses.

Velie noted that many of the information center users at Hamilton Standard would not ordinarily approach the DP department with a formal applications request. Now, once people are trained on a fourth-generation language, they become "almost invisible, except for their questions or if some rules are being violated."

Only a smattering of the 75 people attending the meeting indicated they have information centers installed in their shops. But as evidenced by the steady stream of questions for Velie, information centers are on the minds of many DPers.

Far-Reaching Scope

Information center users range from "clerks to middle-level management," Velie said, and the scope of applications developed by end users is equally far-reaching. "We've even seen the personnel department develop applications for processing insurance forms," Velie said. "And to get a department that's way behind the times in DP to do anything is a milestone."

Despite the unceasing appeal of information centers for end users, Velie said, "everything is not rosy in the information center." In the course of developing the center, he has faced issues such as maintaining the integrity of the data base and gauging the impact of the center's activities on the CPU resources.

Velie also has run into what he described as psychological blocks to the information center among professional programmers working in traditional languages such as Cobol.

Micro Meet Set For Sept. 19-21

SANTA MONICA, Calif. — The National Institute for Management Research will sponsor a three-day conference on "Personal Business Computers" at the San Francisco Sheraton Place hotel Sept. 19-21.

The conference is scheduled to provide an update on microcomputer technology, applications, implementation experiences and management concerns. It will also examine the opportunities, pitfalls and problems involved with the increasing use of microcomputers in day-to-day business operations, the institute said.

The conference will also feature a career clinic on how microcomputers will impact jobs and careers, as well as full-day workshops on financial and accounting applications, office automation applications and the impact of micros on data processing operations.

The conference costs $595. A rate of $295 per person is available for groups of three or more. For more information, contact the National Institute for Management Research through P.O. Box 3727, Santa Monica, Calif. 90403.

Ansi Revises Titles

NEW YORK — Because of a recent revision in its constitution and by-laws, the American National Standards Institute (Ansi) has announced changes in the titles of some of its executive members.

Effective immediately, L. John Rankine, president of the organization, will be chairman of the board.

Donald L. Peyton, executive vice-president, has been appointed president. Peyton is also chief staff executive of the institute.

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For Complex Planning

Decentralized User Endorses Customized DSS

By Paul Gillin
CW Staff

BOSTON — When properly tailored to an organization's structure and needs, decision support systems (DSS) can be used to monitor operations, provide feedback to employees and do short- and long-term planning even in a highly decentralized company, according to the president of Waltham, Mass.-based Thermo Electron Corp.

Although Thermo Electron has 24 divisions in three lines of business nationwide, the company uses a custom-designed DSS for projects as complicated as determining the net present value of the corporation based on a strategy that extends through the end of the decade, according to George N. Hatsopoulos, chairman of Thermo Electron.

Speaking at a recent conference on DSS here, Hatsopoulos outlined some of the major projects completed on the DSS designed internally by the company six years ago. When the value of the company's stock dropped to $12 two years ago, Hatsopoulos used DSS to evaluate several long-term strategies.

One of those plans involved spending $15 million to bring the stock of the $230 million company up to par. But on review using DSS, "we found that investing in our own stock was the most profitable investment we could make," Hatsopoulos said.

Thermo Electron bought its own stock at $14 per share and has watched it rise to $32 since then.

But contrary to the commonly held belief that DSS is useful only for analysis, Hatsopoulos said the tools help him monitor company operations. DSS is used to evaluate results against forecasts in the company's 24 divisions.

"The division managers enter the quotations they give and the probability they think they have of getting a job," he said. "Then I can check back months later to find out how accurate the predictions are. That's a very important management tool. You can 'calibrate' the departments, and after a year or two the managers get to be much more accurate."

DSS is also useful in short-term planning, the executive noted. Since Thermo Electron has fewer than 150 customers, most of whom are publicly held firms, the company uses DSS to formulate its sales plans for the coming year.

"We do that by adding to the data base a section that relates to the customers," he said.

"So if we want to know what's going to happen to [International Paper Co.] when their earnings are down, we can look back and see that the last time that happened they cut their capital spending. We can correlate this to our plan and to the economy as a whole," he said.

On the operations side, if the company is short of cash and cuts have to be made, Hatsopoulos asks each division for an alternate budget plan. "To evaluate this, criteria have to be set," he said. "Using DSS, we've set up a model that shows what mix of plans is best for the organization."

DSS Familiarity Seen Beneficial

BOSTON — Although relatively few of the current generation of executives will ever use decision support systems (DSS) extensively, they nevertheless should become familiar with the DSS being used in their companies, according to one executive DSS user.

Speaking at a recent conference here, George N. Hatsopoulos, chairman of Thermo Electron, a Waltham, Mass.-based supplier of process support equipment and instrumentation and metallurgical services, said, "Most [Chief Executive Officers] today are not that analytically inclined. They are more intuitively oriented."

While he warned that too much analysis can be "a disease," he advised that executives "should become more familiar with analytical methods because if not, they can be sold a bill of goods by giving analysis entirely to their staff."

Mistakes can still be made in the data entry stage, and even the most sophisticated DSS is useless if the numbers being analyzed are wrong, he said. "There's a perception that if it comes out of a computer, it has to be the facts." He cited an example in which one division of Thermo Electron lost money by switching from planning by hand to using a DSS. "People weren't questioning the figures when they should have been."

To avoid that pitfall, the company headquarters shares data between the DP department and the DSS department, which is under the Administration Division. Thermo Electron employs an IBM 4341 computer with programming in Cobol for accounting and in APL for DSS. Two years ago, the company developed a link to transfer data directly from the accounting data base to DSS.

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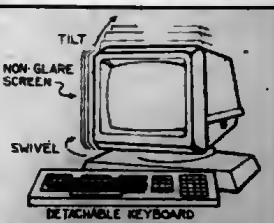
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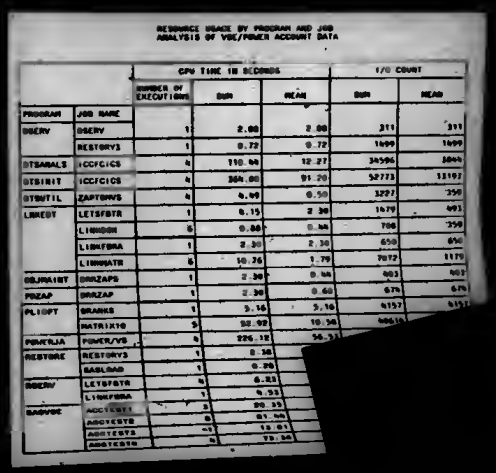
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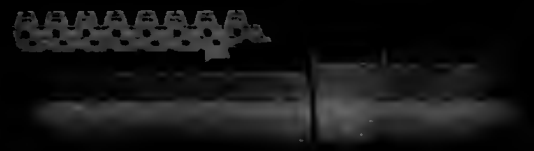
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RESOURCE USAGE BY PROGRAM AND JOB
ANALYSIS OF VSE/POWER ACCOUNT DATA

			CPU TIME IN SECONDS		I/O COUNT	
		NUMBER OF EXECUTIONS	SUM	MEAN	SUM	MEAN
PROGRAM	JOB NAME					
DSERV	DSERV	1	2.88	2.88	311	311
	RESTORV3	1	0.72	0.72	1699	1699
DTSABALS	ICCFCICS	4	110.84	12.27	34596	3844
DTSINIT	ICCFCICS	4	364.80	91.20	52773	13193
DTSUTIL	ZAPTDMVS	4	0.99	0.50	1227	350
LNKEDT	LETSFDTR	1	0.15	2.30	1679	693
	LIBNDDR	5	0.88	0.44	700	350
	LIBNFDRA	1	2.30	2.30	650	650
	LIBNDATR	5	10.26	1.79	7872	1170
OBJRAISE	DRRZAPS	1	2.30	0.44	693	693
PRZAP	DRRZAP	1	2.30	0.66	676	676
PLIOPT	DRANKS	1	5.16	5.16	6157	6157
	MATRIX10	5	52.92	10.58	60010	6177
POWERJA	POWER/VS	4	226.12	56.53		
RESTORE	RESTORV3	1	0.38			
	BASLOAD	1	0.28			
DSERV	LETSFDTR	5	0.83			
	LIBNFDRA	1	4.53			
SADVSC	ADDTEST1	2	90.35			
	ADDTEST2	8	81.44			
	ADDTEST3	4	13.01			
	ADDTEST4	4	73.14			





Spin-Off Finds Itself DP-Less, Opts for Remote Services Net

SAVANNAH, Ga. — When Gulfstream Corp. was founded four years ago, spun off from a division of Grumman Corp., the aeronautical manufacturing and engineering firm had no computer capabilities. They simply were not included in the deal that created Gulfstream, nor were there any in-house computer staffers to design a workable system.

Despite this, "the immediate availability of computer services with the high level of design and analysis software required in aeronautical engineering was vital to our operation," recalled Peter Hellsten, Gulfstream's director of preliminary design. So rather than attempting to build in-house capabilities from scratch, Gulfstream decided to go with a computer services firm.

Today most all of Gulfstream's computer support for design and structural analysis of the business and special purpose aircraft it builds is handled by remote data services, although the company is gearing up to switch to in-house service with the recent purchase of an IBM mainframe.

Nastran Link

As soon as Gulfstream linked up with Control Data Corp.'s Cybernet remote services network, Hellsten said, it had "instant structural analysis with Nastran" — a structural analysis system developed in the late 1960s for the National Aeronautics and Space Administration. CDC provided a full-time instructor, while Gulfstream's engineers became acquainted with Cybernet's software programs and procedures.

In addition to using Cybernet services for design, engine analysis and aircraft performance studies, Gulfstream is broadening computer applications to other areas.

For example, the company now uses Issco, Inc.'s Dissplа, a graphics package that automatically generates the cruise control manual that goes with each aircraft Gulfstream builds. The manual spells out the aircraft's engineering performance data for crews to follow when operating the plane.

Until Dissplа was available, engineering data was collected and formatted entirely by hand, a dreary task that Hellsten said consumed precious engineering and analysis time. With Dissplа, an engineering plot can be generated on an in-house terminal in less than five minutes, Hellsten noted.

Hard-copy printouts are made from the terminal text and used for substantiation documents and proposals.

Pen plots generated by a flatbed plotter and used for manuals are obtained through Cybernet with originals available within two days. The pen plots are sent to the publication department where the Gulfstream logo, page number and a copyright symbol are affixed, and the plot is ready for printing.

"We can produce data in either graphics or digital chart form," Hellsten noted. "And since all engineering performance data doesn't change with each aircraft, we merely update the information base to produce a new manual."

Asis to Address Productivity

WASHINGTON, D.C. — The annual meeting of the American Society for Information Science (Asis), which will be held in Arlington, Va. Oct. 2-6, will address the issue of productivity in the information age.

The meeting will include forums, panels and tutorials exploring the harnessing of information resources for purposes of productivity in personal, business and institutional and international environments. Approximately 100 exhibitors will display systems, services, equipment and publications during the conference.

The registration fee for the conference, slated for the Hyatt Regency Crystal City Hotel, is $170 for Asis members and $160 for nonmembers. Asis is headquartered at 1010 Sixteenth St. N.W., Washington, D.C. 20036.

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Investor Puts Stock in Multifunction Terminals

BALTIMORE — How do you keep track of a handful of events without losing sight of a single one?

For an investment counselor here, the answer is as simple as switching from dedicated computer terminals to multifunction machines.

Investment counselors at T. Rowe Price Associates use quotation and portfolio data on clients' holdings, as well as current stock data in order to make decisions to buy or sell securities, a Price spokesman said.

They previously kept track of this data with dedicated terminals, but recently have been using a multitunction terminal, together with a protocol converter, according to Price.

Normally, securities quotation information comes through a terminal dedicated to stock quotation use. At the same time, data on the clients' holdings are stored at DP/Associates, a custom service bureau also located here.

Since there are many investment counselors at T. Rowe Price, the savings in hardware costs, time and convenience by combining all data into one terminal were obvious, according to a DP/Associates spokesman.

The company gets its stock quotations from Monchik Weber in New York, which provides data on stocks that is similar to that provided by other quotation services.

DP/Associates operates an IBM 4341 to process the stock price and volume information needed by the investment counselors.

The data is supposed to be displayed on a standard IBM terminal.

Monchik Weber, however, uses a Data General Corp. C 330, which operates from Ascii, asynchronous protocol, while the IBM uses its Binary Synchronous Communication (BSC), a Price spokesman said.

Display at Desks

A Local Data Datalynx/3270 protocol converter was selected to perform the Ascii-BSC conversion automatically. Now all data is displayed on Lee Data Corp. display terminals at investment counselors' desks.

The protocol converter appears to the IBM mainframe as a remote 3274 control unit with an attached 3278. The protocol converter adds formatting instructions needed on the Ascii side and eliminates IBM characters not needed.

The data moves between here and New York by 4,800 bit/sec on AT&T's Dataphone Digital Service link. A total of 10 stock quotes can be requested in one transaction, with total elapsed time of approximately seven seconds from the time the initial Enter key is pressed by the investment counselor, a Price spokesman said.

Study Finds 50% Of Programmers Bored With Work

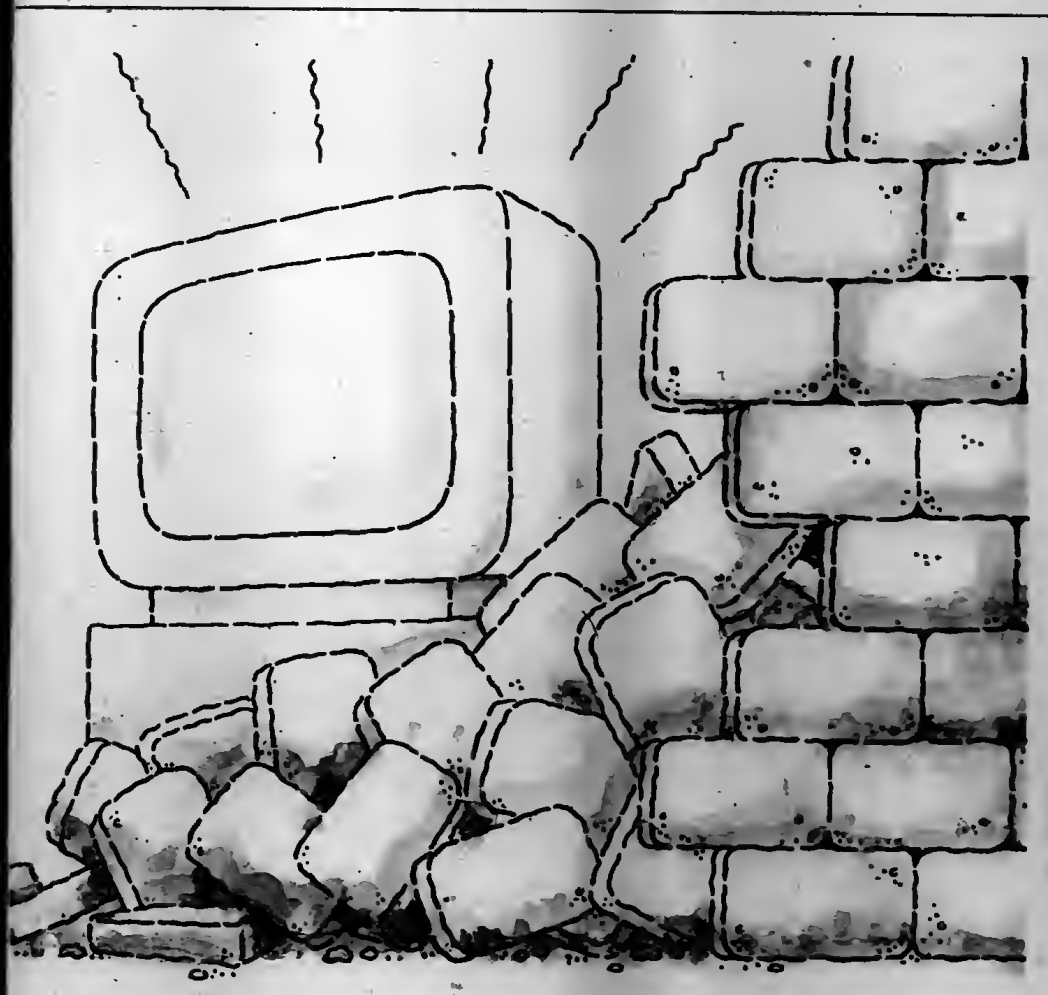
COLORADO SPRINGS, Colo. — More than 50% of the analysis/programming work in industry computer departments is being performed by people who consider their tasks unchallenging or boring, resulting in a multimillion-dollar annual loss in productivity, according to a report released here recently.

"Motivation of the Maintenance Programmer," by Dr. J. Daniel Couger and Dr. Mel A. Coulter of the University of Colorado, analyzed a data base of more than 6,000 people in the computer field and concluded that the motivating capacity of a job was inversely correlated with the amount of maintenance being performed.

The two researchers found that increasing the motivation of programmers can lead to boosts in productivity of 10% to 40%.

In the report, the authors detail 10 organizations where productivity is high because, they claim, management has matched the degree of richness of the job to the individual programmer's need.

The 162-page report, containing 14 application case studies, is available for $750 from Cysys, through P.O. Box 7345, Colorado Springs, Colo. 80933.



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DPMA Foundation Awards Grants to Three Schools

PARK RIDGE, Ill. — The Data Processing Management Association (DPMA) Education Foundation's grants and awards program recently allocated a total of $15,000 to three colleges, according to Foundation President Terrence J. Boyer.

The program was established in 1981 to provide funding for projects that further education in the areas of information processing, computer science and computer applications in business.

The grant to the University of Evansville will be used to support a fellowship fund for the Fourth Annual Small Institute in Data Processing. Valley City State College in North Dakota will use its grant to develop a plan for implementation of the DPMA Model Curriculum for Computer Systems Education.

With its grant, the Dominican College of San Rafael, Calif., will develop a curriculum plan that will include the setting of goals, an analysis of capabilities, the identification of capital needs, establishment of a time schedule and the design of a funding package.

For information on the grants and awards program, contact the Manager of Educational Services, DPMA International Headquarters, 505 Busse Highway, Park Ridge, Ill. 60068.

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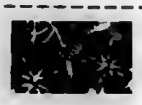
While obviously sophisticated enough to satisfy the most professional DP person, Answer/DB is also so simple to operate that end users are very happy with it.

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THE FOURTH INTERNATIONAL CONFERENCE ON INFORMATION SYSTEMS, Houston, Dec. 15-17.

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In addition, papers are solicited which describe innovative methods for education information systems.

Submitted papers may reflect any research methodology appropriate to the problem investigated.

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Three copies of the full paper must be received as soon as possible.

Papers should be no longer than 25 pages, including the abstract and all illustrations, tables and references.

Copies of the paper should be sent to Professor E. Burton Swanson, Program Chairman, Graduate School of Management, University of California, Los Angeles, Calif. 90024.

COMPUTER MEASUREMENT GROUP, INC.'S XIV INTERNATIONAL CONFERENCE ON COMPUTER PERFORMANCE EVALUATION, Crystal City, Va., Dec. 6-9.

Papers and tutorials are encouraged in the following performance-related areas: capacity planning and prediction; work-load characterization/forecasting; distributed processing analysis; I/O subsystems performance analysis, design and use of performance evaluation tools; user requirements and user service agreements, office automation analysis; installation management performance issues; productivity — establishing goals and measuring performance, DP budgeting, cost accounting, charge back and financial management; managing a performance evaluation staff; professionalism in the computer performance evaluation field; network optimization; change control; corporate staff relations; and software development performance prediction.

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Manufacturer Changes Hardware

Fourth-Generation Tool Smoothes Conversion

NEW CASTLE, Pa. — When a manufacturer here undertook a major hardware conversion, a fourth-generation language helped ease the complex process.

Morris Ayres, director of management information systems for Universal Rundle Corp., said that even after the conversion to Burroughs Corp. hardware was completed, Burroughs' Linc fourth-generation language has continued to improve productivity for his department. It is now used in everything from design to report generation, Ayres said.

The product was used to convert several major systems including financial reporting, product standard cost, payroll, corporatewide billing and finished goods inventory. As of May, all of the systems had been implemented.

"Based on our conversion experience, I estimate an overall reduction of project implementation man-hours of about 60%," Ayres said. "The reduction occurs in the time it takes to design, code and test the new system. The most significant time reduction is in coding a new system, which is about 90%. Using Linc, this part of the system project becomes secondary to the design."

DP Time Savings

More time is now spent on design, and every design detail does not need to be defined completely. Before Linc, the DP department performed detailed system design, which helped to ensure that all data elements were identified and correctly sized. This analysis is no longer necessary, Ayres said.

"If we miss a data element or need to increase its size, we just regenerate the system which provides the capability to unload and reload the data base, and this can be accomplished in less than one day," he said. "System design attention is directed to the business problem and not to the technical portion of the system design."

Linc provides the capability to maintain tables for editing of data input, both in the on-line maintenance of the table data and the automatic validation of the transaction against the table.

This editing capability results in more accurate data in the data base, Ayres said. A top-down system design is used to design Linc systems.

Users Get Results

"Before Linc, and after the design of the system development activity was completed, users would not see any results on the computer for six or more months," Ayres said.

"Now, initial results can be delivered within a few weeks after the completion of the system design."

Linc's impact on the systems department has been dramatic, Ayres said.

"Early in 1982, we had seven people doing programming and system analysis and one manager. They were working on a three-year backlog," he said. "The average work experience was about seven years. The system department now consists of four people and a manager with a three-year average experience, and the backlog has been reduced to six months. Most of the Linc system development was accomplished with the four system people."

The acceptance of the Linc product by the DP staff was mixed, Ayres said.

One employee quit because he wanted to use the more conventional approach to designing systems. However, Linc is now accepted as Cobol once was.

The technical function of setting up the system software, including maintaining the message control program for on-line terminals, coding for new data bases and making changes has been eliminated, Ayres said.

Personnel were able to learn how to use Linc in about four weeks, without formal training by Burroughs.

"Our ability to change systems and provide new reports to users has changed significantly since Linc," Ayres said. "Maintenance of existing systems would take 30% to 35% of our staff time. With Linc, we estimate maintenance time to be about 5%."

Maintenance Advantages

Since Linc is a system generator rather than a program generator, the product offers maintenance advantages, Ayres said.

"Each time you make a change to a system generated by using Linc, the entire system is logically checked for consistency of the change within the system, and if inconsistent, errors are noted," he said.

"Under the conventional approach, a change to a single program may cause a problem in another program within the system. It takes careful testing by the programmer to ensure maintenance is properly done. I think most program generators will have the same problem. The approach of generating an entire system, as Linc does, has solved this problem."

Linc generates a real-time, on-line data base system with full recovery, Ayres said.

Compared with conventional systems, its approach eliminates the need for subsequent processing after data entry, where one or more programs edits or updates a file prior to final destination in a data base.

The additional programs and file processing in conventional systems usually require additional maintenance steps when making system changes.

This additional maintenance time is eliminated in the Linc approach, according to Ayres.

"In performing maintenance, many times new data elements need to be added or existing data elements' sizes increased," Ayres said. "Performing the maintenance with Linc, you simply change the data element size and/or add the data element to the proper place with Linc regenerating the system. Linc will create the data base code for the change, schedule all recompiles of the data base code and set up the proper reorganization of the data base for the computer operator to execute at the proper time."

Linc has automated report writing by including two features: the ability to access the data base and manage a control break within a single command. Only the unique coding for a specific report needs to be added to the proper access commands, Ayres said.

Documentation Easier

Linc also has capabilities for documentation, Ayres said. "First, you can develop 'help screens' to support your on-line entry. If an operator needs to refer to documentation, it can be done on-line.

"Previous to Linc, we maintained operator manuals. If a change was made to the screen, the pages of the manual were updated and sent to the user department for inclusion in the manual. Many times, users did not update the manual, so when a reference had to be made to the operator manual, it was not complete.

"Now, using Linc, the screen change and the 'help screen' change are made at the same time. When the operator is using the new screen, the 'help screen' documentation always corresponds," Ayres noted.

Linc's document printer feature allows the system analyst to print the Linc specification in the form of a manual. The user can create a table of contents and chapter headings, draw boxes around paragraphs of code and highlight.

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Calendar

Week of July 24

July 25-29, New York — **CICS Internal Architecture.** Contact: Sysed, Inc., One Park Ave., New York, N.Y. 10016.

July 25-29, Sunnyvale, Calif. — **Work Load Analysis and Forecasting.** Contact: Institute for Software Engineering, 510 Oakmead Pkwy., Sunnyvale, Calif. 94086.

July 25-29, Phoenix — **Advanced Structured Analysis.** Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036.

July 25-29, Houston — **CICS/VS Application Programming Command Level.** Contact: Dianne Halper, On-Line Software International, Fort Lee Executive Park, Two Executive Drive, Fort Lee, N.J. 07024.

July 25-29, Detroit — **Siggraph '83, The Tenth Annual Conference on Computer Graphics and Interactive Techniques.** Contact: Siggraph '83 Conference Office, 111 E. Wacker Drive, Chicago, Ill. 60601.

July 25-29, New York — **Vsam.** Contact: Sysed, Inc., One Park Ave., New York, N.Y. 10016.

July 25-29, Columbus, Ohio — **Project Planning & Control Workshop.** Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036.

July 26, New York — **CICS/VS Application Design.** Contact: Dianne Halper, On-Line Software International, Fort Lee Executive Park, Two Executive Drive, Fort Lee, N.J. 07024.

July 26, New York — **Microcomputers: Emphasizing Their Use in Data Communications.** Contact: Micro Ed., 31 Marshall Drive, Edison, N.J. 08817.

July 26-28, Dallas — **SAS Basics Course.** Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511. Also being held Aug. 16-18 in Arlington, Va.

July 26-29, St. Paul, Minn. — **Structured Requirements Definition.** Contact: Georganna Carson, Kenn Orr and Associates, Inc., 1725 Gage Blvd., Topeka, Kan. 66604.

July 26-29, Wellesley, Mass. — **Structured Programming.** Contact: QED Information Sciences, Inc., P.O. Box 181, 180 Linden St., Wellesley, Mass. 02181.

July 27, New York — **CICS/VS Application Programming, Macro Level.** Contact: Dianne Halper, On-Line Software International, Fort Lee Executive Park, Two Executive Drive, Fort Lee, N.J. 07024.

July 27-28, Summit, N.J. — **IMS Message Format Services.** Contact: Chubb Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901.

July 27-29, Hasbrouck Heights, N.J. — **Data Communications.** Contact: The American Institute for Professional Education, Carnegie Building, 100 Kings Road, Madison, N.J. 07940.

July 27-29, Dallas — **SAS Computer Performance Evaluation Course.** Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511.

July 27-29, Washington, D.C. — **Distributed Systems Design: Micros to Mainframes.** Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

July 28, New York — **CICS/VS Application Design.** Contact: Dianne Halper, On-Line Software International, Fort Lee Executive Park, Two Executive Drive, Fort Lee, N.J. 07024.

July 28, Nashua, N.H. — **How to Make Your Computer System More Efficient.** Contact: New Hampshire College, 2500 N. River Road, Manchester, N.H. 03104.

July 28-29, Washington, D.C. — **Microcomputers: Emphasizing Their Use in Data Communications.** Contact: Micro Ed., 31 Marshall Drive, Edison, N.J. 08817.

July 28-29, Boston — **Developing Business DP Systems — A Management Briefing.** Contact: Yourdon, Inc., 1133 Ave. of the Americas, New York, N.Y. 10036.

July 28-29, Chicago — **Local-Area Networks: Selection Guidelines.** Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

July 28-29, Frederick, Md. — **Construction Cost Estimation and Bidding: Using the Personal Business Computer.** Contact: Phyllis W. Parrish, Center for Management Development, College of Business and Management, University of Maryland, College Park, Md. 20742.

July 28-29, Albuquerque, N.M. — **Applying the New Tools for Profits and Cash Flow Planning: Graphics and Personal Computers.** Contact: Matthew Malok, The American Institute of Certified Public Accountants, 1211 Ave. of the Americas, New York, N.Y. 10036.

Week of August 7

Aug. 8-12, Oakbrook, Ill. — **MVS Systems Management.** Contact: The Institute for Software Engineering, 510 Oakmead Pkwy., Sunnyvale, Calif. 94086.

Aug. 8-12, Sao Paulo, Brazil — **The Fourth Latin American Micrographics Congress.** Contact: Antonio Paulo A. Silva, Cenadem, R. Haddock Lobo, 585-5th Floor, 01414 — Sao Paulo — Sp, Brazil.

Aug. 8-12, Ann Arbor, Mich. — **Contemporary Data Communications Networks: Planning, Analysis and Design.** Contact: Continuing Engineering Education, University of Michigan, 300 Chrysler Center, North Campus, Ann Arbor, Mich.

(Continued on Page 32)

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Calendar

(Continued from Page 31)

Aug. 9-11, Springfield, Mass. — **Vsam Programming Workshop.** Contact: Keith Lamb, New England Data Services, Suite 4, 1353 Boston Post Road, Madison, Conn. 06443.

Aug. 9-11, New York — **Managing AOS/VS System Resources.** Contact: Data General Corp., Corporate Educational Services, 4400 Computer Drive, Westboro, Mass. 01580.

Aug. 10-12, Boston — **IBM's Systems Network Architecture and Implementation.** Contact: Communications Solutions, Inc., 992 Saratoga-Sunnyvale Road, San Jose, Calif. 95129. Also being held Aug. 11-13 in San Jose, Calif.

Aug. 10-12, Toronto — **SAS Applied Time Series Analysis and Forecasting Course.** Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511.

Aug. 10-12, Wellesley, Mass. — **Data Base Concepts.** Contact: QED, Information Sciences, Inc., P.O. Box 181, 180 Linden St., Wellesley, Mass. 02181.

Aug. 11-12, Los Angeles — **Strategic Planning for Information Systems.** Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011. Also being held Aug. 15-16 in San Francisco.

Aug. 11-12, Washington, D.C. — **Data Administration: Development and Practice.** Contact: Barnett Data Systems, 19 Orchard Way N., Rockville, Md. 20854.

Aug. 11-12, Towson, Md. — **Getting Started in Computerized Maintenance Management.** Contact: Phyllis W. Parrish, Center for Management Development, College of Business and Management, University of Maryland, College Park, Md. 20742.

Aug. 11-12, New York — **Shell Programming on the Unix Systems.** Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011.

Aug. 11-12, Denver — **Data Communications: Advanced Concepts, Products and Services.** Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

Week of August 14

Aug. 15, New York — **Introduction to the IBM Personal Computer.** Contact: Center for Advanced Data Processing, Inc., Suite 402, 450 Seventh Ave., New York, N.Y. Also being held on Aug. 16 and Aug. 22 in New York.

Aug. 15, New York — **Word Processing on the IBM Personal Computer.** Contact: Center for Advanced Data Processing, Inc., Suite 402, 450 Seventh Ave., New York, N.Y. Also being held Aug. 16 and Aug. 20.

Aug. 15-16, Las Vegas — **Software Quality Assurance, Verification and Validation.** Contact: Education Foundation of the Data Processing Management Association Seminars, Department SQA, P.O. Box 3608, Torrance, Calif. 90510-3608. Also being held Aug. 18-19 in San Francisco and Aug. 22-23 in Anaheim, Calif.

Aug. 15-17, Parsippany, N.J. — **Job Control Language.** Contact: Chubb Advanced Training Center, 480 Morris Ave., Summit, N.J.

Aug. 15-17, New York — **DL/1 Applications Programming.** Contact: Rosa DiSanto, Comped Technical Corp., 1133 Ave. of the Americas, New York, N.Y. 10036.

Aug. 15-17, New York — **Office Automation: Strategic Planning, Design and Implementation.** Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

Aug. 15-17, New York — **Data Network Design.** Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020.

Aug. 15-17, Vancouver, B.C. — **Digicon '83.** Contact: Computer Science Programs, UBC Centre for Continuing Education, 5997 Lona Drive, Vancouver, B.C., Canada V6T 2A4.

Aug. 15-17, Parsippany, N.J. — **MVS Dump Debugging.** Contact: Chubb Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901.

Aug. 15-18, Keystone, Colo. — **The Sixth Annual Conference on Automated Mapping/Facilities Management.** Contact: Barbara Emery, AM/FM International, 5680 S. Big Canon Drive, Englewood, Colo. 80111.

Aug. 15-18, New York — **Vtam: From Start to Finish.** Contact: Dianne Halper, On-Line Software International, Fort Lee Executive Park, Two Executive Drive, Fort Lee, N.J. 07024.

Aug. 15-19, Hartford, Conn. — **Structured Analysis and Design Seminar.** Contact: Keith Lamb, New England Data Services, Suite 4, 1353 Boston Post Road, Madison, Conn. 06443.

Aug. 15-19, Santa Cruz, Calif. — **Computer Graphics.** Contact: Institute of Computer Science, University of California Extension, Santa Cruz, Calif. 95064.

Aug. 15-19, Washington, D.C. — **Structured Analysis/Design Workshop.** Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011.

Aug. 16-19, Cary, N.C. — **Introduction to Data Processing Using SAS (CMS) Course.** Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511.

Aug. 17-19, Wellesley, Mass. — **Data Analysis.** Contact: QED Information Sciences, Inc., P.O. Box 181, 180 Linden St., Wellesley, Mass. 02181.

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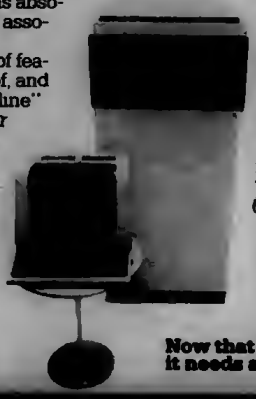
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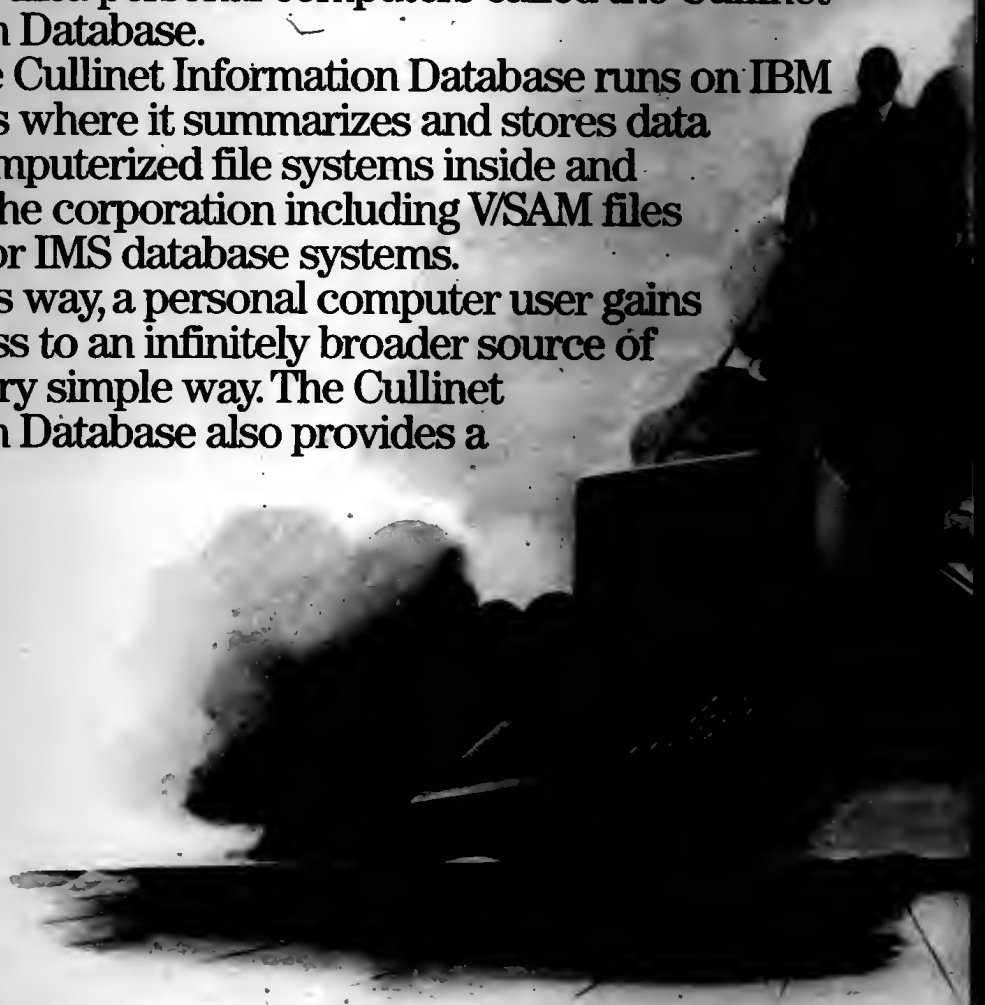
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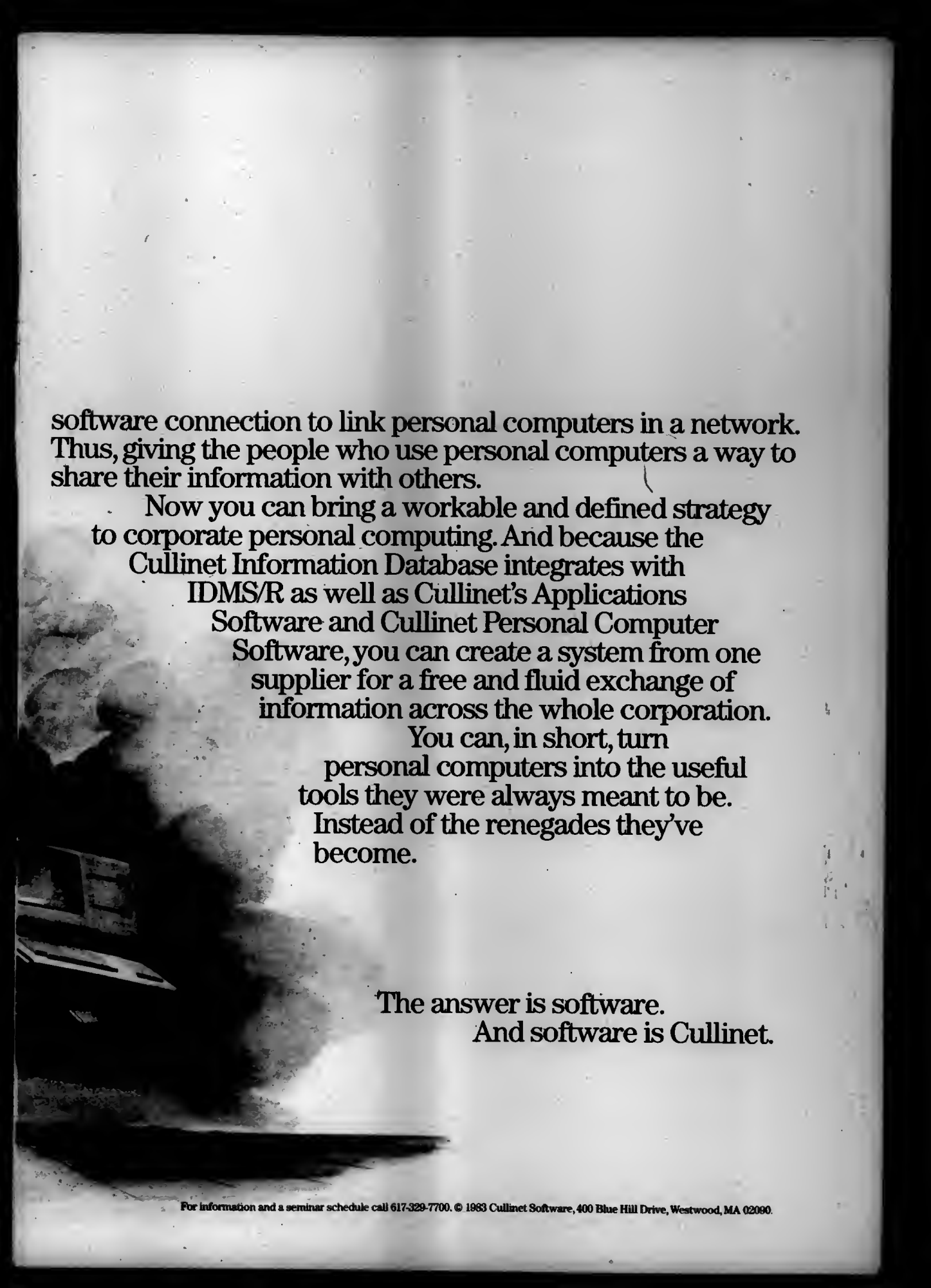
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EDITORIAL

Not Looking for Union Label

Let's hear it for the DP professional — the nonsocializing technical staffer who has so far refused to unionize and will, it is hoped, maintain this stand.

DP pros have been characterized as highly intelligent individuals who are notoriously resistant to the so-called benefits of unionizing. They tend to have a high regard for good performance — particularly when they view themselves as good performers — and very little patience with office politics. Often described as loners, DP pros usually prefer to be paid well for the job they do than to be paid at the same rate as their fellow workers simply because they have the same time in grade.

But aren't these loners missing out on all of the benefits that will come to them if they are organized into a union group that might be recognized by upper management as a force with which to be reckoned?

Not likely, if the recently reported ban on telecommuting of the Service Employees International Union (SEIU) typifies the benefits of unionization [CW, July 11].

Although approached with caution by conservative management information systems execs at most large firms, telecommuting is an alternative work method that could provide answers to some staffing dilemmas. The crucial systems programmer who is unable to commute for six months because of an accident, but who is perfectly capable of working at a terminal at home; the data entry work that could be handled on third shift if the entry operators could find some way of avoiding a long commute down deserted highways in the middle of the night; and the child-care problems being faced by many DP professionals as the majority of professional women opt for working motherhood rather than temporarily halting their careers — all of these are possible concerns for the hard-pressed executive facing tight deadlines.

Telecommuting is not the only answer to these staffing problems and others facing DP managers. But it is one possible answer — one that the SEIU has opted to ban arbitrarily.

Why?

The reasoning behind the SEIU's stand against telecommuting seems to be along the lines that cold-hearted employers will somehow take advantage of those who opt for computer homework. Citing the home-based garment industry as a bad example of work at home, the SEIU leadership apparently feels that upper management will automatically cut off benefits and pay the lowest possible wage to telecommuters.

The reason for the telecommuting ban is based on the classic union stance that management is out to gouge the most from its employees while giving them the least in terms of wages and benefits. This argument may have been valid 40 years ago; it now has little application for the majority of DP professionals.

If, on the other hand, management is willing to try out work alternatives that increase employees' individual flexibility without having a negative impact on their productivity — a practice that may be increasing, based on a recent *Computerworld* survey [CW, June 20] — there is one less reason for the union to exist.

Every MIS director would do well to keep this in mind when his employees approach him with suggestions for alternative work possibilities and schedules that may run the gamut from telecommuting to flex time to compressed workweeks. His technical staffers may be highly individualistic loners who are tough to deal with. But he will do himself and them no favor if he arbitrarily turns down reasonable requests and, perhaps, forces them to consider unionizing in order to gain a fair hearing.



LETTERS

More Interview Tips

Jon E. von Gunten's In Depth article "Where Job Interviews Go Wrong" [CW, June 20] contains some good ideas. One thing missing from the article, however, is the fact that candidates should interview with several organizations, with the view of getting more than one offer. Secondly, 40% of the information communicated by an organization to a candidate is communicated when the offer is presented.

Insofar as honesty or deception is a factor in these interviews, candidates should ask a qualified headhunter to fill them in. A good recruiter will give them the information they need to make good decisions.

I question the 20% number von Gunten uses to describe job switching that goes wrong; I believe it to be 10% or less. High-technology systems people tend to be very smart and conservative about job changes.

Robert A. Clark
Manager
Technical Services
Houser, Martin, Morris & Associates
Bellevue, Wash.

ACM Budget

As a follow-up to the article "ACM Proposal to Cut Chapters' Budget Opposed" [CW, May 23], I would like to offer the following comments.

Indeed, the proposed budget that was forwarded to the Association for Computing Machinery (ACM) council in advance of its National Computer Conference '83 meeting reflected a $15,200 cut in chapters board travel expenses. It is also true that these cuts would have seriously affected travel-intensive programs within the board, including the ACM fectureship program, the chapter workshops program and the Scholastic Programming Contest.

Since there was still an opportunity to revise the budget prior to its adoption by ACM council, I brought this matter to the attention of the chapters representatives, the ACM Executive Committee and other members of the council. There was a good deal of sympathy on the part of all concerned that cuts of this magnitude were not warranted. As a result, the Executive Committee restored $12,500 of these funds, and council adopted a budget that incorporated this modification.

I am most appreciative of the support that several members of ACM, including those mentioned in the article, gave to the chapters board on this matter. It is gratifying to see that ACMers are not afraid to object when they feel that those in power are doing wrong by them. It is equally gratifying to see that those in power are sensitive and responsive to these concerns.

Stuart H. Zweben
Chairman
Chapters Board
Association
For Computing Machinery
New York, N.Y.

Erasing, Deleting Files

In J. Michael Nye's letter to the editor [CW, June 20], Nye confuses erasing a file with deleting a file.

If a floppy disk record is actually erased (as by using a demagnetizer or by overwriting the file), there is no utility program that can recover the data. Deletion involves making the data inaccessible by standard procedures by delisting it from the disk catalog or by otherwise changing the pointing information that leads to the data.

His conclusion that "the only way to protect . . . is to destroy the media physically" is absurd.

Chester H. Page
Silver Spring, Md.

SOFTLINE/Werner L. Frank‡

'Hybrid' Computing and Distributed DP Sites

This is the second of a two-part series on "The Microcomputer Meets the Mainframe."

In a previous column [CW, July 4], three major reasons why the microcomputer is becoming inextricabiy tied up with the mainframe were identified.

The first of these factors related to the micro taking on the role of a terminal. This leads to some hardware rationalization by using one device for multiple purposes, for example, as a terminal accessing a host computer or in free-standing mode operating as a desktop computer.

The second reason involved the requirement for moving files of data from one computer to another — the well-known file download and upload application.

Achieving Distributed DP

However, the more interesting and far-reaching reason behind the desire to integrate mainframe processing with desktop computing is the objective of achieving distributed data processing. Indeed, by connecting a mainframe to a microcomputer, one has the potential of:

- Exchanging data between systems (for example, downloading to a micro, as well as loading to a mainframe).
- Augmenting mainframe computing by use of the micro (for example, intelligent data entry).
- Augmenting microcomputing by use of the mainframe (for example, back-end processing).
- Distributing data bases and distributing processing.

In essence, the proper mix and structuring of these four capabilities yield the potential of creating a truly distributed DP environment.

In order to describe the intricacy of this new computing power, we give it a new name: hybrid computing. There are several levels or steps in hybrid computing, ranging from the very simple to a rather sophisticated intertwining of processing. We define this progression in terms of five levels of communications as follows:

- *Level A: Dumb Connection.* This is the simplest and most direct connection. A communications path is established that permits the transfer and receipt of data in the acceptable communications and message protocol of the host computer.

In this mode, the intelligent device is a dumb terminal with respect to the host, behaving like the normally connected native terminal that is typical to that host (for example, the Hewlett-Packard Co. HP 2622A terminal connected to the HP 3000). During the connection, a host-based application may be executing with associated results shown on the personal computer's screen.

At the end of the execution, the intelligent device disconnects and there is no memory, that is, data or results, that remains with that device. In other words, the personal computer was simply used as a terminal. Level A is the technology used for emulating a terminal via an intelligent device such as a personal computer.

- *Level B: Passive Data Download.* A next step in processing complexity might be the election possible at the intelligent terminal to pick off the data sent from the mainframe to the screen of the terminal during Level A-type processing. Upon the conclusion of such a sitting, one has captured all of the data that has flowed in the course of the mainframe applications execution.

This data will have been automatically accumulated in the form of a locally stored file. It would then be incumbent upon the user of the personal computer to process further such files in order to make them useful for subsequent local processing.

In the event a mainframe-based utility for file transmission is initiated in the sense of Level A operation, invoking Level B capability provides the typical file download function. The data may not appear on the local screen at all, but simply end up on the associated storage medis of the personal computer. This is the function that the most popular commercially available microcomputer software provides when advertising a mainframe communications capability.

- *Level C: Passive Information Download.* This level of processing is similar to Level B except that we introduce programmed intelligence in the data picking process so that the passive files generated are actually structured and formatted to suit a particular purpose and need. The data files become a file of information. In order to do this, the author of the picking process must know all about the native format of the data that is downloaded, as well as the requirements of the file format that is ultimately required.

An example is the downloading of data and the automatic selection/formatting to the DIF structure suitable for subsequent entry into Visicalc processing.

Another example may be the capture of a text file that, if necessary, is modified so that it is directly accessible to a specific word processing system operating on the micro. An example of a dynamic, user-controlled procedure is the method used by the MBA product of Context Management Systems, Inc. of Torrance, Calif., where a record format template is definable, and the records of the transferred files automatically get stored according to the prescribed template definition.

Another example of such functionality is the possibility of data selection afforded during IBM 3278 emulation using an IBM Personal Computer and the Series 327X Model PC78-2 software of Forte Data Systems, Inc. of Santa Clara, Calif. While executing a mainframe application directly from the IBM Personal Computer in 3270 terminal mode, the screen image is buffered in the onboard memory of the circuit board that is emulating the 3278. This allows a program executing in the Intel Corp. 8088 of the IBM Personal Computer to operate concurrently on the very same screen buffer in order to extract data selectively and collect it for subsequent availability.

- *Level D: Active Information Extraction.* For this level, we introduce for the first time special software operating on the mainframe in conjunction with the software on the micro. (In the first three levels, no changes

(Continued on Page 38)

HUMAN CONNECTION/Jack Stone‡

Some Execs Cannot Fulfill Their DP Roles

Until recently, I had blithely and optimistically believed that there was not a single executive around who could not understand his responsibilities for data processing, the nature of the relationships that must be developed with the data processing department and the kinds of information systems that have to be addressed.

Of course, I am fully aware of all the heat that senior officials have taken from the DP community to nudge them in the fast-breaking world of business electronics, including the leveling of such alleged misfeasances as:

- Rejection of opportunities to attend computer literacy classes.
- Insensitivity to the needs of the DP organization.
- Rapid shifts in project priorities and development plans.
- Exclusion of information systems management from the inner circle of decision makers.

But I have observed hundreds of them grow from babes in the DP woods to fire-breathing advocates of computer miracles after they finally dragged themselves off to decent training programs, thereby giving credence to my thesis.

Different Perspective

Then a very experienced independent software veodor presented an entirely different perspective on the subject, one derived from post-installation activities. Here is a summary of my interview with this individual:

Q: What is your background in dealing with company officials?

A: f supply a proprietary data base management package for a small minicomputer that has the facilities to support all the operational data bases for small and medium-size firms and branch offices of larger firms.

As part of my program, I regularly contact top executives and senior management not only for marketing purposes, but also for systems briefings. f get to know each of them rather well because f am in regular contact with the personnel in my customer organization during my one-year maintenance period.

Q: How do you classify the managers you serve?

A: I have borrowed some terms used in psychology circles that are amply descriptive. First, there are the subassertive, who listen closely to what f tell them to do and follow my instructions to the letter. The installation proceeds without a hitch, everyone knows his respective role, post-installation questions are routine, and the work gets done to everyone's satisfaction.

They are very good customers, but it should be noted that they rarely take the initiative to explore new systems possibilities; instead, they choose to forego the analysis function and rely on me to come up with new projects. This group comprises about 60% of my population.

Then there are the assertive types. These are my supercustomers who pick up the DP ball in a hurry and run with it fast and furiously. They organize systems planning efforts and rapidly build up an expert capability for designing and implementing new systems.

Of course, my data base management package enables them to accomplish their goals without computer programming. I almost never get calls from them after installation, except to take orders for new products. This group represents 20% of my people.

Finally, we have the aggressive category, the final 20%. Here is where my real problems lie. Executives in this category are highly successful in their businesses but complete boors when it comes to personnel relations; seemingly too busy to listen to advice or accept computer briefings (I believe their preoccupations are evidence that they cannot order the computing machinery, as they do their staffs, to do their bidding); distrusting of computer products and dependent on their successful seat-of-the-pants decision making; and mostly interested in computing systems because their competition has installed them.

The installations are usually a mess because the people are scared to death that the executive will rant and rage about the lack of machine performance. f receive frantic calls from them regularly. Believe me, these executives may be industry leaders, but they are definitely untrainable for DP responsibilities.

Five Levels of 'Hybrid' Computing

(Continued from Page 37)

or edditions to existing mainframe software were assumed.) "Extraction" refers to the mainframe-based capability of opening files, making data selections and creating formats to specification so that appropriately structured files, which are ready for processing, end up in the storage associated with the microcomputer.

The most typical instances of commercially available products falling into this category are offerings by vendors who have control of mainframe applications and, therefore, have knowledge of the associated data files. Key suppliers fitting this description are Management Science America, Inc., with its Executive Peachpak, end McCormack & Dodge Corp.'s Interactive PC Link.

A second source of such fecility comes from vendors who heve proprietary data management capability operating on the mainframe. Here we see entries such as Cullinet Software, Inc.'s Information Database and Personal Computer System.

However, there is also e general-purpose system announced by Informatics General Corp. and Visicorp, namely, Visianswer, with its mainframe Answer/DB' connection, which will permit Level D processing between virtually any IBM mainframe-based file and the Visiseries software operating on the IBM Personal Computer.

■ *Level E: Dual-Mode Processing.* In all prior four levels of hybrid operation, execution is either in local mode, personal computer mode or remote terminal mode. The hybrid data processing occurs by moving from one mode of operation to the other in e serial fashion. Communication between modes is via file transfers. Under Level E processing, the notion of duality of execution is introduced. This essentially establishes a multitasking environment in which intermittently we may be executing in either of these modes. This capability does not exist today as an off-the-shelf offering, even though the software parts necessary for such operation ere availeble.

Thus, for example, certain multiprogramming operating systems, combined with dynamic screen windowing operations, could produce a hybrid processing environment. It is clear that the next likely step in the evolution of the micro connection to the mainframe will be such hybrid computing. With such a fecility, the following becomes achieveble:

- Transfer of files while another local processing task is under way.
- Ad hoc inspection of the data while it is being transferred.
- Dynamic selection of the data at any point in the process.
- Back-end data management.
- Management of the data in e distributed environment.

With hybrid computing, it will become feasible to distribute both the data and the processing in the mixed environment of micros and mainframes. However, to carry this out, the centralization of data definition and enforced deta sharing discipline will have to be introduced into such systems.

Moreover, the ectivity of the individual operating somewhat independently et his own workstation will require both control and coordination. Who will heve access to what data? How can data be modified? What about the order of processing end the integrity of the results in en environment in which many independent actions may take place?

This does not even address some of the physical consequences of performance and throughput, for example:

■ What new cabling and phone line demands would thousands of aspiring personal computer communications impose on a central data processing fecility?

■ What requirements would be laid upon the manegement information systems organization with respect to the capacity of the front-end communications unit?

■ Would the normal processing load et the mainframe bog down under such new and unanticipated demand?

These questions suggest that the first step in arranging for the meeting of the micro and the mainframe should be a careful review and organization of individual needs in the context of the individual's work unit'e data processing requirements. This is the issue that has been termed "departmental computing" and is currently being addressed by advocates, vendors of local-area networks and others.

Interestingly enough, the capabilities generally associated with local-area networks, in the form of communications geteways and file servers, actually support rather well the identified issues for micro-to-mainframe connection. Could it be that co-computing of micro and mainframe is through the facility of the local-area network?

The integration of microcomputing with mainframe processing will be the focus of computing for the next few years. Exciting new opportunities are available to vendors with innovetive offerings, as well as to users who will have the challenge of exploiting immense computing power et their fingertips.

Frank is an independent consultant end president of the Werner Frank Computer Group located in Calabases, Calif.

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LETTERS

Case for Contracts

At the expense of continuing a disagreement among lawyers, I feel compelled to respond to Thomas K. Christo's reader commentary "DP Contracts Don't Leave Users Defenseless" [CW, June 13].

I, too, have had experience in negotiating computer-related contracts, as well as litigating computer-related disputes. Based on this experience, I tend to agree with James J. Marcellino's and John. M. Conley's reader commentary "Negotiate Contract Clauses at the Beginning" [CW, March 21].

Unfortunately, from the user prospective, the protections afforded the purchaser, as suggested by Christo, simply are inadequate at this time to provide the average user the relief that he seeks in most situations.

Christo suggests that three legal theories will provide the aggrieved user adequate remedies, regardless of contractual language. These three elements, as suggested, are the common law of fraud, negligence and misrepresentation.

Both fraud and misrepresentation require on the vendor's part, although to varying degrees, a scientor, or a knowledge of what he is stating is not factually correct. Proving this element in a court of law can indeed be a difficult task.

With respect to negligence as a tort vs. a contract remedy, the courts simply are not readily recognizing that disputes between vendors and users fall within the parameters of negligence law.

In various states, where users' attorneys have offered that vendors have committed computer malpractice in that they have been negligent in the design and implementation of their programs, the courts have to date refused to accept this theory as being actionable at law.

Time and time again, from both my own experience and review of the subject matter in this area, it is apparent to me that the courts generally rely very heavily on the written contract between the parties.

Therefore, the warning to negotiate contract clauses at the beginning seems to me to be sound advice.

Although Christo is correct in stating that some vendors will refuse to negotiate the terms of their preprinted contracts, the user should not be discouraged.

With the growing intensity of competition for the user dollar, as well as the growth in consumer awareness, the vendors, although reluctant to do so, are being forced (and will in the future to a greater degree be forced) to negotiate their contracts more fully.

Dennis S. Deutsch
Attorney
Englewood, N.J.

Computerworld welcomes comments from its readers. Preference will be given to typed, double-spaced letters of 150 words or less. Letters should be addressed to Editor, *Computerworld*, 375 Cochituate Road, P.O. Box 880, Framingham, Mass. 01701.



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EXECUCOM

What Makes a Development Project Work?

SAN MATEO, Calif. — What factors spell the difference between success and failure when a company undertakes a large software development project?

Analysts International Corp. (AIC), a software consulting firm here, set out to answer this question by surveying 31 companies that had successfully implemented 41 projects.

The criteria AIC established for projects to study were as follows:

- The firms used structured analysis and design techniques (including Ed Yourdon, Chris Gane & Trish Sarson or Jean-Dominique Warnier-Kenneth Orr.)
- The projects required more than 200 man-months.
- The projects were completed successfully.

'To prevent its development team from spending too much time perfecting data flow diagrams, one company took away their forms and templates and issued plain brown wrapping paper. As a result, the team became more flexible about making changes.'

AIC Manager Carole Ausman reported that the factors contributing to success fell into two rough categories: technical and managerial.

Three technical issues were common among large, successful projects using structured techniques. The first was that successful projects adapted methods, techniques and life-cycle methodologies to their particular organizations rather than adopting them verbatim. "In fact, the failure of one large project we found was attributed to high or dogmatic adherence to a particular structured methodology, losing sight of their goals," Ausman noted.

The researchers found that to prevent its development team from spending too much time perfecting data flow diagrams, one company took away their forms and templates and issued plain brown wrapping paper. As a result, the team became more flexible about making changes to designs than it was when it had carefully completed drawings using templates.

Secondly, all of the successful projects

(Continued on Page 44)

We Want to Hear Your DBMS Story

Data base management systems (DBMS) are increasingly in the news these days, and *Computerworld* wants to hear your views on the changing nature of these products for an upcoming Special Report.

The DBMS supplement will appear in the Oct. 31 issue. It will include applications stories or case studies that describe an end user's experiences with a product from his perspective and tutorials that are non-product-specific articles describing a particular idea or concept regarding DBMS.

Tell us how the use of DBMS has impacted your organization. Describe what you see as the changes that are occurring in these types of products. Will relational systems make their way into traditional IBM IMS shops?

The articles should be four to six double-spaced typed pages. Preference will be given to articles that include black-and-white photos and/or camera-ready artwork. All material must be received by Sept. 5.

More information about the Special Report is available by contacting Paul Gillin, Senior Writer, *Computerworld*, Box 880, 375 Cochituate Road, Framingham, Mass. 01701.

Utility Program Allows Micro-IBM CPU Transfers

SAN FRANCISCO — OBS Software, a division of On-Line Business Systems, Inc., has announced File Transfer Protocol (FTP), a utility program that allows file transfer between microcomputers and IBM mainframes running IBM's TSO or VM/CMS.

FTP consists of a mainframe program and a micro program that runs on the IBM Personal Computer with PC-DOS, Apple Computer, Inc. Apple II with DOS or Digital Research, Inc.'s CP/M operating system or Intel Corp. 8080 or Zilog, Inc. Z80-based machines running CP/M, according to the company spokesman.

FTP contains a layered protocol including full cyclic redundancy checking and automatic retry.

The micro program contains an asynchronous dumb terminal emulator so that the user dials the mainframe, connects to TSO or CMS and issues either the upload or download command during the session, the company spokesman said.

FTP is priced at $4,000, including up to 10 copies of the micro version from OBS at 115 Sansome St.; San Francisco, Calif. 94104.

Cobol-Based Dictionary Bows

PERTH, Australia — Software Supermarket has announced Superdata, a standalone, Integrated systems documentation and data dictionary package.

Written in Cobol, Superdata is machine- and data base-independent, a spokeswoman said. An end user can find relationships of data from a corporate or government level down to an element level. Programs are provided that unload the necessary Superdata files from one machine and reload them onto another machine.

Nine levels of hierarchy are available: corporation/government, company/department, system, subsystem, programs, subroutines/modules, files, records and element/subelements.

A batch program sets up the initial master files. Interactive programs allow the user to enter new entities, comments and descriptive elements into the appropriate files and to change and delete elements.

Superdata costs $1,950 from Software Supermarket, 10 Sixth Ave., Applecross, Perth 6153, Western Australia, Australia.

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SDSI

Shared Dataset Integrity, SDSI, solves the inherent data integrity problems caused by the simultaneous access of the same data by more than one system without the use of device 'reserves'. SDSI greatly improves system performance by allowing the user to eliminate device 'reserves' from existing programs without any system or program modifications.



STAM

Shared Tape Allocation Manager, STAM, automatically manages mountable devices, (tape and disk), in multi-CPU installations. Allocation decisions for shared device pools are made automatically, thus eliminating the potential for disastrous operator errors and more effectively using these valuable resources than is possible with manual control.



SCON

Superconsole is designed to provide a single console image for a multi system environment where console messages can be merged together to create a single stream on one or more designated consoles. The result is a more streamline and productive operating environment. Operators will have to monitor only one console instead of many eliminating the need for redundant hardware and personnel.

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Package Creates Structured Cobol

BRAINTREE, Mass. — Group Operations, Inc. has unveiled a package that is designed to transform "apaghetti code" into a structured Cobol program.

Operating on any IBM or plug-compatible OS-based system, Superstructure reportedly orders an existing program into a series of Perform modules with a single entry point and a single exit point. All GO TO commands are restricted to the same module; ALTERED GO TO and GO TO DEPENDING ON commands are replaced; and FALL THRU commands are eliminated.

Dead code in the original program is not removed, but Superstructure marks it as dead with a comment, the vendor explained. Except where required by Cobol, sections such as I/O and declaratives are removed. The Superstructure Scorecard provides a management summary of the transformed code between the spaghetti and structured versions.

The price of Superstructure starts at approximately $50,000, the vendor said from Suite 7, 22 River St., Braintree, Mass. 02184.

Decsystems Get Compiler For PL/I

FRAMINGHAM, Mass. — John J. Xenakis Co. has announced a full-language PL/I compiler for Digital Equipment Corp. Decsystem-10 and Decsystem-20 mainframes. The compiler is an implementation of the ANS-1976 PL/1 language standard, a larger version than the ANS subset-G PL/I.

Xenakis PL/1 provides compiling options for compatibility with IBM's Checkout and Optimizing PL/I compilers, a spokesman said.

The compiler has two modes of operation. In the "load-and-go" mode, PL/1 statements are compiled and executed individually, permitting full source-level debugging of PL/1 while they are executing. In "precompiled" mode, an entire program is compiled and a relocatable object file is produced. Both modes may be mixed and may call each other without restriction, the spokesman noted.

A license costs $18,000 from Suite 403, 66 Dinsmore Ave., Framingham, Mass. 01701.

Tool Targets Fortran IV, 77

SAN FRANCISCO — Kozo Keikaku Engineering, Inc. has announced F-Scan, a package which produces output reports on either Fortran IV or Fortran 77 source programs.

The product runs on Data General Corp. MV series, Digital Equipment Corp. VAX-11 and Prime Computer, Inc. machines and under IBM's OS/VS operating system. Reports can cover program structure, parameter correspondence, common usage and file usage. A complete static analysis is produced on the program interfaces.

F-Scan can reportedly be used as a debugging aid, as a performance analyzer prior to conversion, for planning in program maintenance and for making changes to existing programs.

The price of F-Scan is $4,950 from Suite 500, 22 Battery St., San Francisco, Calif. 94111.

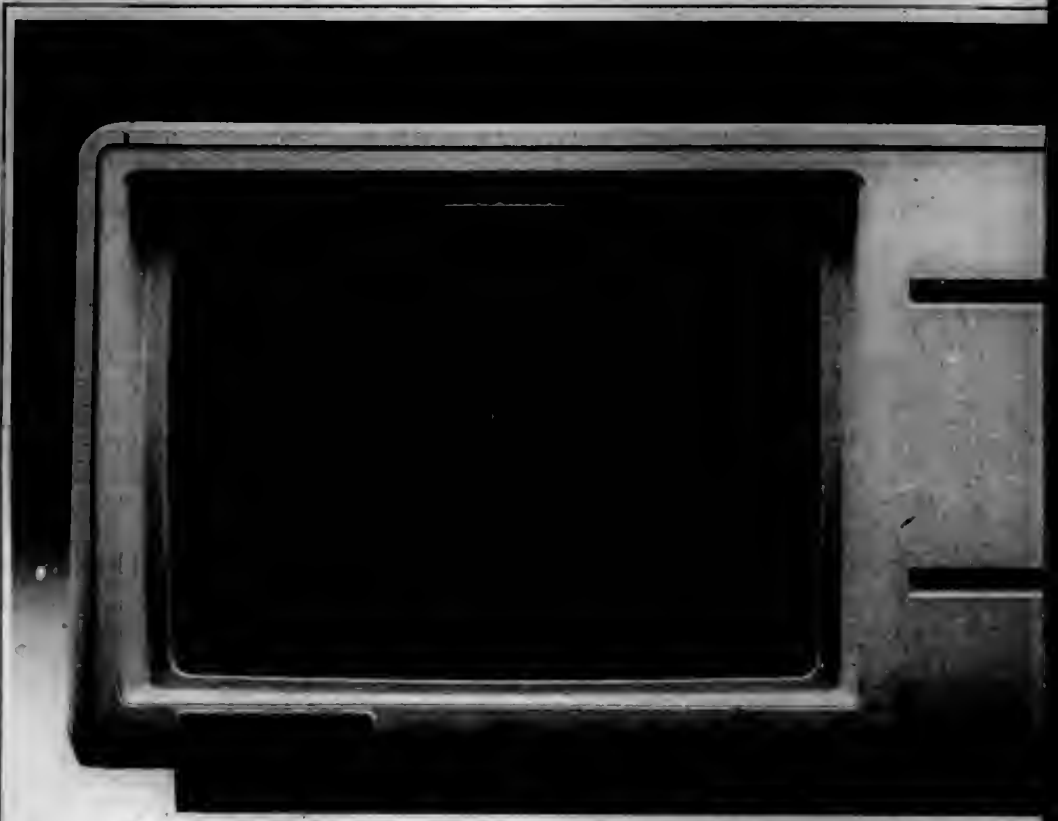
Price Increase Announced For 'RD/Share' Facility

SACRAMENTO, Calif. — RD Labs, Inc. has announced price increases of 25% on its RD/Share shared library facility for IBM VM/CMS systems effective August 3.

Charges for a single CPU installation will be $5,475 for a permanent license or a $455/mo lease price. The cost of continuing program support will also increase to $785/year for new RD/Share customers.

RD/Share's primary function is management and control of source program files. It also manages IBM CMS update facilities, allowing for maintenance of multiple levels of change files and version control.

More information is available from RD Labs at Suite 300, 1010 Hurley Way, Sacramento, Calif. 95825.



Apple's new Lisa is the world's most powerful personal computer.

Its 32-bit MC68000 microprocessor gives it the processing capability of a mid-range mainframe.

It also has one million bytes of internal memory. And, with a 5-Megabyte hard disk, more than 15 times the on-line mass storage of standard microcomputers.

Given these most imposing credentials, one could get the impression Lisa was designed solely to scare one's socks off.

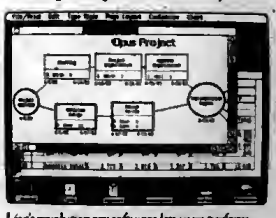
On the contrary.

What makes Lisa totally revolutionary is that, for the first time, all this phenomenal power is contained in a business computer you can learn to use in under 30 minutes.

200 years of hard work made it easy.

To tell Lisa what to do, all you have to do is point.

But achieving this simple concept required a totally new approach to software and 200 person-years of development.



Lisa's revolutionary software lets users perform several applications simultaneously, even "cut" and "paste" them together. The powerful project management program seen here is a Lisa exclusive.

Lisa replaces complex computer commands with symbols familiar to anyone who's ever worked at a desk.

Even someone who's never touched a computer before can learn Lisa in under half an hour. Versus the 20 hours or more required to unriddle conventional PC's.

To information managers, that means dramatically reduced training time and increased productivity.

But people don't just learn faster on Lisa, they also work faster. Each of Lisa's powerful applications* use symbols and commands common to all. So with little practice, users can move from LisaCalc to LisaGraph to LisaWrite without missing a beat. Or use them all at once, "cutting" information from one program and "pasting" it directly into another.

Packages Aid Designers Working With IBM 370s

LAGUNA NIGUEL, Calif. — Chapman & Associates has announced five packages for systems designers and programmers working on IBM 370 OS-based systems and one for those using IBM 370 MVS-based systems.

For an OS environment there are: Extended Precision Arithmetic for $3,000, Data Encryption Standard for $1,000, Keyword Scanner for $500, Message Manager for $600 and Report Assists for $200.

For an MVS environment, there is the Dynamic Dataset Allocation program priced at $500, from Chapman, at 29605 Sea Horse Cove, Laguna Niguel, Calif. 92677.

Serial Version Out

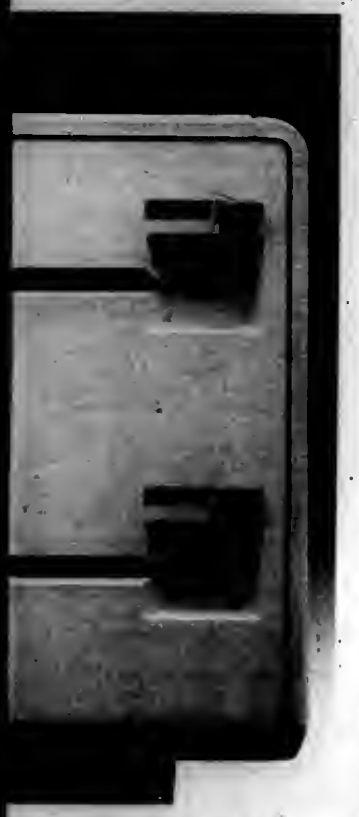
Module Protects Software

SAN DIEGO — Staff Computer Technology Corp. has announced a serial version of The Key, a hardware module which protects software from being pirated. The serial version can run on any computer system with an RS-232 interface. It also runs on the Digital Equipment Corp. LSI-11 minicomputer, the IBM Personal Computer and computers from Apple Computer, Inc.

The product provides the computer with a unique identification, a spokesman said. The interactions of the software and The Key are used to form inquiry/response pairs to enhance security. More than one software package can be utilized with the same Key.

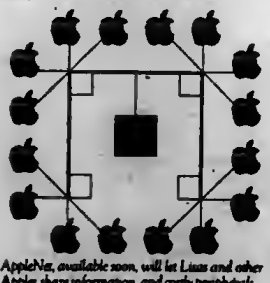
By requiring use of The Key, software developers can control the use of their software. A single-user license can make the software available only to a single user.

The serial version costs $300 from Staff Computer Technology at 10457 Roselle St., San Diego, Calif. 92121.



There's even a program — LisaProject — that lets you use the mouse to chart the progress of complex projects, automatically recalculating when deadlines or resources change.

On paper, Lisa is just as exceptional. With its dot matrix and daisy wheel printers, it produces printed materials just as you see them on the screen.



AppleNet, available soon, will let Lisas and other Apples share information, and costly peripherals.

Powerful connections.

Any Lisa system can become part of a powerful Lisa network through AppleNet, our own low-cost local area network.

It enables a user to transfer documents from one department to another, so they can be rapidly reviewed. Or modified. Or passed on to other Lisas.

The same network allows Lisas to branch out to other Apples. Or share disks, printers and other costly peripherals.

Using the LisaTerminal program, Lisas can tie into mini and mainframe computers, by emulating VT 100-type or 3270-type terminals.

And soon Lisa will provide a revolutionary link to Cullinet's Information Database for mainframes.

In short, one Lisa can do the chores of many terminals. All of which means swifter response times and better distribution of resources.

Stay on top of new developments.

Lisa's unique user interface lets programmers develop programs with unaccustomed speed.

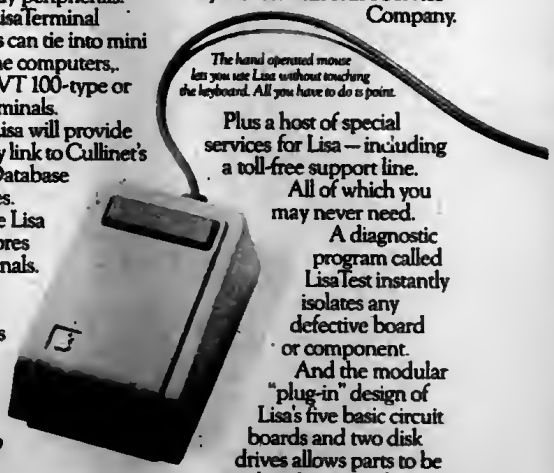
But that's not Lisa's only programming attraction.

The Lisa Workshop provides a powerful environment in which to develop COBOL applications. A full screen Lisa-like editor, code generator, and multiple windows make a visible difference in development times.

Apple also supplies all the documentation, instruction, and support a developer requires to integrate applications into the Lisa environment — no matter how sophisticated their information processing needs.

We support the whole family.

Apple now offers nationwide on-site service for all Apples in conjunction with RCA Service Company.



The hand operated mouse lets you use Lisa without touching the keyboard. All you have to do is point.

Plus a host of special services for Lisa — including a toll-free support line.

All of which you may never need.

A diagnostic program called LisaTest instantly isolates any defective board or component.

And the modular "plug-in" design of Lisa's five basic circuit boards and two disk drives allows parts to be replaced in seconds, with just one tool: Your fingers.

For the whole story, call our National Account Program at (800) 538-9696.

No matter how large your company, Apple has all the elements to improve your information systems management.

Including Lisa, the computer that makes headlines.

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With more programs on the way, Lisa's library now includes LisaCalc electronic spreadsheet, LisaList data base, LisaWrite word processing, LisaGraph business graphics, LisaDraw presentation graphics, LisaProject electronic project management and LisaTerminal data communications. For information regarding corporate purchases through our National Account Program, call (800) 538-9696. In Canada, call (800) 268-7796 or (800) 268-7632. Or write to Apple Computer Inc., MIS/EDP Marketing Dept. 20525 Mariani Ave., Cupertino, CA 95104. ©1983 Apple Computer Inc.

Upgrade For Ctop(r) Announced

BOISE, Idaho — H&W Computer Systems, Inc. has announced Release 6 of Ctop(r), its IBM CICS 32 Series Transmission Optimizer Program. The new version is said to provide up to 70% performance improvement over previous releases.

Ctop(r) operates under IBM's DOS, OS/VS1 and MVS operating systems with CICS/VS Release 1.4 and above. It is a performance enhancement for a CICS remote network, a spokesman said.

The product improves response time by eliminating redundant or unnecessary characters that are being transmitted. Optional on-line and batch compression statistics are available for use in line balancing and billing. A site license costs $2,500 from H&W Computer Systems through P.O. Box 4173, Boise, Idaho 83711.

Price Tag On ACF2 To Rise 10%

LOS ALTOS HILLS, Calif. — The Cambridge Systems Group has announced a 10% price increase for the IBM MVS version of its security product Access Control Facility 2 (ACF2), from $27,000 to $29,700. The increase becomes effective September 15.

Effective immediately is a $5,000 discount when a customer purchases two AXX2 family products concurrently and a $10,000 discount when all three products in the line are purchased concurrently, the vendor said.

The AXX2 family includes Automated Space Management System 2, a Dasd management package; ACF2; and Automated Data Center 2, a job scheduling package, according to a vendor spokesman.

Cambridge Systems Group is located at 24275 Elise, Los Altos Hills, Calif. 94022.

Version 3.0 Out Of 'Top Secret'

MARLBORO, N.J. — CGA Computer Associates, Inc. has released Version 3.0 of its Top Secret data security software, said to allow implementation by stages for IBM MVS environments.

The software offers the user a choice of implementation by user, group or facility. The software also features a single audit/tracking file that is shared across all CPUs, the vendor spokesman said.

Top Secret can be leased for $9,600/year for single processors. Multiple-CPU terms are available at $6,000/year for each additional processor at the same site. CGA is located at Cannon Hill Farm, 255 Rt. 520 E., Marlboro, N.J. 07746.

Transport Firms Get On-Line Tool

RADNOR, Pa. — Sun Information Services Co. has introduced an on-line software package for transportation-related industries in IBM DOS or MVS operating environments.

The Motor Carrier Maintenance System is said to include inventory control, purchase order management, preventive maintenance scheduling, vehicle performance and license plate management.

The DOS version costs $40,000 and the MVS version costs $60,000 from Sun Information Services at 280 King of Prussia Road, Radnor, Pa. 19087.

Aid Runs on Stratus Systems

WALTHAM, Mass. — Advantage Systems, Inc. has announced that its cash management services software for banks is available for Stratus Computer, Inc. systems.

The Forte Financial Services System is said to provide both balance reporting and customer-initiated funds transfer capabilities.

The software costs between $450,000 and $900,000, depending on options and capabilities. It runs on Stratus' Unix-based VOS operating system, an Advantage Systems spokesman said from 395 Totten Pond Road, Waltham, Mass. 02154.

Study Examines the Success Of Development Projects

(Continued from Page 41)

had one or more in-house experts who knew the methodology and techniques well, believed in their value and inspired others to use and believe in them, the researchers found. "Without knowledgeable assistance from interested experts, the tendency was to adhere blindly to each minute detail of the instructions or to give up and go back to old habits," Ausman noted.

The third common technical factor of the successful projects was an emphasis on preparing modular specifications. These facilitated delegating coding to less expensive programmers, uncovered reusable code and reduced the cost of maintenance because the systems were easier to comprehend. The companies were using cohesiveness and coupling, two factors of specification clarity that are defined in structured analysis and design terminology, the AIC researchers noted. "Cohesiveness" refers to the integrity of a module or specification; it does one complete function. "Coupling" refers to a module's interdependence upon other modules.

Managerial Factors

The managerial factors that all of the successful projects shared included the following:

- Planning: Project leaders spent a high percentage of their time planning and preparing estimates, schedules and cost/benefit analyses.
- Phased Deliverables: Operable products were delivered to users at intervals of one year or less, which kept user and project team enthusiasm high and kept management interested and supportive, they noted. Some companies phased by function; other firms phased by complexity.
- User Involvement: Key user representatives were assigned to the project on-site for its duration.
- Communications: Frequent meetings and walk-throughs were held.
- Organizational Structure: A clear chain of command was established, with one person responsible and accountable at each level.
- Corporate Focus: Senior management kept track of costs and progress in frequent review meetings with prepared status reports.
- Leadership.
- Logistics: This proved to be the least critical aspect insofar as motivated project teams were able to rise above the unavailability of proper tools, training, access to people, computer time and other difficulties.

Further information about the AIC study is available from Ausman at AIC, Suite 311, 100 S. Ellsworth, San Mateo, Calif. 94401.

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CallCost Manager shows where you need reorganization, different schemes of features or lines, or the best way to do extension-by-extension customization.

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CallCost Manager is only the latest reason why ROLM systems are the choice of the top Fortune companies, and, increasingly, the preferred solution to digital networking. In fact, there are more than 12,000 ROLM CBXs worldwide and over 10,000 data devices communicating through ROLM systems. (That's more than all other PBX manufacturers combined.) And they're doing it now. Not tomorrow. Now.

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Talk to us about CallCost Manager. You'll know a lot more about your phones, and your phones will feel a lot better about themselves.

ROLM. NOW.

Text Editor Bows For Iris From CSA/CRT

OAKLAND, Calif. — CSA/CRT, Inc. has released a text editor for Point 4 Data Corp.'s Iris operating system.

Called Fastedit, the product may be used for program development and maintenance and simple word processing functions. Features include full screen display and global locate/modify. Fastedit only writes to disk when data is changed, a spokesman said. Users with cache memory may configure Fastedit so that no disk I/O takes place while editing.

Fastedit allows copying to or from other text files during an edit session. It also automatically splits long text lines to permit handling on an 80-char. screen, the company claimed. The package costs $199 from CSA/CRT, 5707 Redwood Road, Oakland, Calif. 94619.

Hospital Aid Fits System/36

FORT MYERS, Fla. — Medical Engineering, Inc. has announced the Integrated Hospital Information System (Ihis-36) for the IBM System/36 processor.

Written in IBM's RPG-II, the package is an on-line, interactive information management system for hospitals ranging from 50 to 350 beds, the vendor said.

The cost is under $100,000 from Medical Engineering, located at Suite 108, 2675 Winkler Ave., Fort Myers, Fla. 33901.

MDS 'Express' Updated for Prime

WALTHAM, Mass. — Management Decision Systems, Inc. (MDS) has announced a version of its Express information analysis and modeling software for the Prime Computer, Inc. 2250 minicomputer.

Two versions of the product will be sold as a hardware/software configuration, combining the 2250 with a multiuser version of Express. Called the E300 and E600, the systems support three and six simultaneous Express users and 30 and 60 simultaneous total users, respectively.

Both systems include 2M bytes of memory and 68M bytes of storage. The E300 system costs $125,000, and the E600 costs $180,000.

MDS also announced the Express Marketing Decision Support System (EM/DSS), an enhancement to its time-shared version of Express, which is designed for marketing managers in consumer products industries. The package uses English commands and prompted sequences to perform analyses, including forecasting and promotional analysis.

A monthly charge of $3,500 is typical, a spokesman said from MDS at 200 Fifth Ave., Waltham, Mass. 02254.

'Touch 'N Plan' Unveiled For CAD, Drafting Systems

LOS GATOS, Calif. — Arrigoni Computer Graphics, Inc. has announced Touch 'N Plan for use with the firm's computer-aided design and drafting systems.

Touch 'N Plan consists of modules for space planning, interior design and facilities management. The package is an extension of the firm's Touch 'N Draw II design system based on a Motorola, Inc. 68000 microprocessor.

The unit supports the Unix operating system and can be used in Xerox Corp. Ethernet local-area networks, the vendor said.

Users of the Touch 'N Plan package can maintain current information of people, space and equipment. Space projection programs compute future space and equipment requirements and compare the results to historical trends. A furniture budgeting module computes future expenses by job code and department. A furniture master ties item costs into a directory of equipment standards.

Projected expenses are based on the same manpower plans used for the space projections module, the vendor said.

In addition, there are six other modules which control vertical stacking, space management, furniture bidding, budget and project tracking, furniture and equipment inventories and data base query reports, the vendor said.

The complete Touch 'N Plan package (all nine modules) costs $35,000. If purchased separately, the modules cost from $3,000 to $11,500, Arrigoni said from 170 Knowles Drive, Los Gatos, Calif. 95030.

Tool Aids Production Of Application Software

PROVO, Utah — Clyde Digital Systems, Inc. has announced Computer Aided Design and Computer Automated Programming (CAD/CAP), a product which is said to allow users of any experience level to produce application software on Digital Equipment Corp. VAX-11 computers running DEC's VMS. operating system.

Generation of program source code is automatic, a spokesman said. A screen editor allows the user to format reports. Tools are also provided to optimize the data base.

Tutorials are provided and the system can be menu-driven with Help screens available. The product costs $3,000 from Clyde at 3707 N. Canyon Road/3E, Provo, Utah 84604.

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VAX RESOURCE ACCOUNTING SOFTWARE

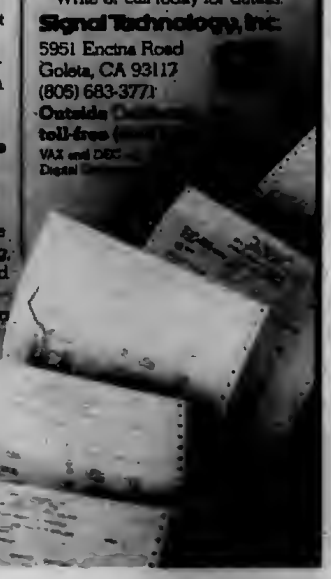
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PACS provides much more than standard VAX resource reports. Extra features include flexible billing algorithms, user budgeting, efficient disk storage collection, port speed accounting, software/hardware tracking and an optional login enhancement — EZLOG!™ EZLOG allows users to specify projects during login, making it the only software available with true 3-level reporting by account, project and user. With EZLOG, you can even change projects without logging out.

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Due to popular demand, we've created a new display that fits both tight spaces and tight budgets.

Our new ITT Courier 1700.

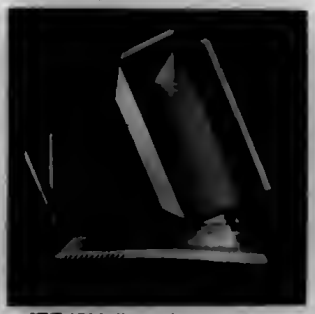
The 1700 is compatible with the 3278 model 2. Yet its footprint is only 13 x 12 inches (24% smaller than IBM's 3178). And its keyboard is only 16 inches wide (17.9% smaller than the 3178).

Still, the 1700 is big on ergonomics and the kind of performance features you expect from ITT.

Its screen tilts and swivels, and its keyboard adjusts for optimum operator comfort.

It has Reveal to aid program development. Capture to aid troubleshooting. And Variable Field Underline to increase productivity.

Things you don't get with the IBM 3178.



ITT 1700 tilts, swivels and has a smaller price than IBM 3178.

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X/Region Service Provides National Marketing Data

GREENWICH, Conn. — Control Data Corp. (CDC) has announced the availability of an on-line service that reportedly allows companies operating nationwide to focus on business activity and prospects in segmented markets.

The X/Region service is said to provide marketing executives as well as financial and corporate planners with multiregional and multiindustrial data for the 1970 to 1990 period.

The service reportedly integrates internal and external data into one system to pinpoint marketplace trends.

Information available from the service reportedly includes: domestic output by industry, payrolls by industry and income, population, deaths and births, employment by industry, labor force and unemployment, personal consumption expenditures by industry, equipment investment by industry, construction expenditure by type, federal government expenditures by function and total state and local government expenditures.

The X/Region service is priced at a minimum usage charge of $200/mo, the vendor said.

More information is available from CDC, located at 500 W. Putnam Ave., Box 1700, Greenwich, Conn. 06836.

System/36 Gets Spreadsheet

LARKSPUR, Calif. — Fusion Products International, publishers of software for the IBM System/34, 36 and 38, has announced Fusion/3-36, a financial modeling and electronic spreadsheet system package for the System/36. Fusion/3-36 reportedly consolidates data (pyramiding) automatically with real-time data extraction of System/36 application files. This offers the user the ability to gather data into one report without programming and long procedures.

Other Fusion/3-36 features include column calc control, a print format that allows for line and column variations, accommodation of a variety of paper sizes, model dimensions of 97 col. by 10,000 lines with 9,999 spreadsheets/file and on-line tutorials and help screens. A single-key library contains 54 financial and statistical routines.

A single-copy license for Fusion/3-36 costs $3,000, Fusion Products International said from Suite 105, 900 Larkspur Landing Circle, Larkspur, Calif. 94939.

Accounting Aid Enhanced For HP 3000

MONTROSE, Calif. — Mini-Computer Business Applications, Inc. has announced Release 2 of its accounts receivable package, written in Cobol for the Hewlett-Packard Co. HP 3000 computer.

Release 2 reportedly offers multiuser and multicompany capabilities, allowing a user-defined general ledger number format with up to 24 characters.

The package is said to handle both open item and balance forward customers while processing sales, credit memos and debit memos.

The package allows inquiry of customer accounts through the terminal screen, accessing customers by number or partial name, according to the vendor.

Access to all data is controlled with a security system that grants each user one of three access privileges for each application.

A source code license for the package sells for $4,500. More information is available from the vendor at 2441 Honolulu Ave., Montrose, Calif. 91020.

'Tolas' Module Operates On VAX-11

PITTSBURGH, Pa. — Transcomm Data Systems, Inc. has announced the Transcomm On-Line Accounting System (Tolas) Fixed Assets Module, operating in native mode Basic on Digital Equipment Corp. VAX-11 computers.

Fixed Assets maintains and reports information required by the Internal Revenue Service to support depreciation claims for federal and state tax purposes. The system also provides general ledger tracking of fixed asset-related transactions.

Four different depreciation methods are provided. The user may also specify one of three standard accounting conventions to define how depreciation amounts are distributed over the life of each asset. The system automatically calculates both asset depreciation and Investment Tax Credit amortization amounts, the company claimed. Audit trail features are employed, and a variety of standard reports are included for summary and detailed asset management reporting.

The module is an extension of the Tolas system which may be operated alone or in conjunction with the seven other modules that comprise Tolas. The Fixed Assets Module costs $12,000 from Transcomm, located at 1380 Old Freeport Road, Pittsburgh, Pa. 15238.

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General Ledger Tool Serves VAX

PALO ALTO, Calif. — Ross Systems, Inc. has introduced Management, Accounting and Planning Software (Maps/GL), an interactive general ledger package for Digital Equipment Corp. VAX-11 minicomputers.

The software can be customized for most accounting and organizational structures, a spokesman said. Parameter-driven transactions processing and reporting features can be customized. The software is structured around a centrally located data base where financial, historical, budget and statistical data reside. The end user can control access to data, processing schedules and report generation.

The product can be integrated with Maps/Model, Ross' financial modeling package. Maps/Model can be used to develop financial forecasting, budgeting, strategic business planning and tax analysis systems. The package also includes "what if" analysis, multilevel consolidations, statistical analysis and graphics.

Maps/GL is priced from $22,500 to $30,000. Maps/Model is priced from $22,000 to $30,000 from Ross Systems, 1860 Embarcadero Road, Palo Alto, Calif. 94303.

Spreadsheet Upgraded For Decsystem-10, 20

MENLO PARK, Calif. — NCP has announced new features for NCP Calc Version 2.0, a spreadsheet package for Digital Equipment Corp. Decsystem-10 and 20 computers.

New features reportedly include consolidation, internal rate of return, edit command, synchronized scrolling of two to 16 windows, conditionals and cell protect/unprotect.

NCP Calc supports 18,000 columns and 10,000 rows with up to 20,000 cells, the vendor said.

The product works with data stored on large capacity disks, and a single package can be shared by 100 users. The price is $9,500 from NCP at Suite 150, 535 Middlefield Road, Menlo Park, Calif. 94025.

Sharp Adds Data Base To Network

TORONTO — I.P. Sharp Associates has added the Bank for International Settlements (BIS) data base to its time-shared network. BIS provides debt data on a worldwide basis.

The BIS data base reportedly contains total assets and liabilities for 200 countries, collected from a group of commercial banks.

Included are quarterly figures for assets and liabilities and semiannual figures for assets, liabilities and maturity distribution of assets, the vendor said.

The data can be manipulated with I.P. Sharp's Magic software package and graphed on the company's Superplot graphics package, a company spokesman said.

There is no initiation fee, surcharge or minimum charge for the use of the BIS data base.

Standard time-sharing rates reportedly are $1/hour connect time, 25 cents to 45 cents/CPU used and 70 cents per thousand characters transmitted or received.

I.P. Sharp is located at Suite 1900, 2 First Canadian Place, Toronto, Ontario, Canada M5X 1E3.

Prime Offers New Medusa

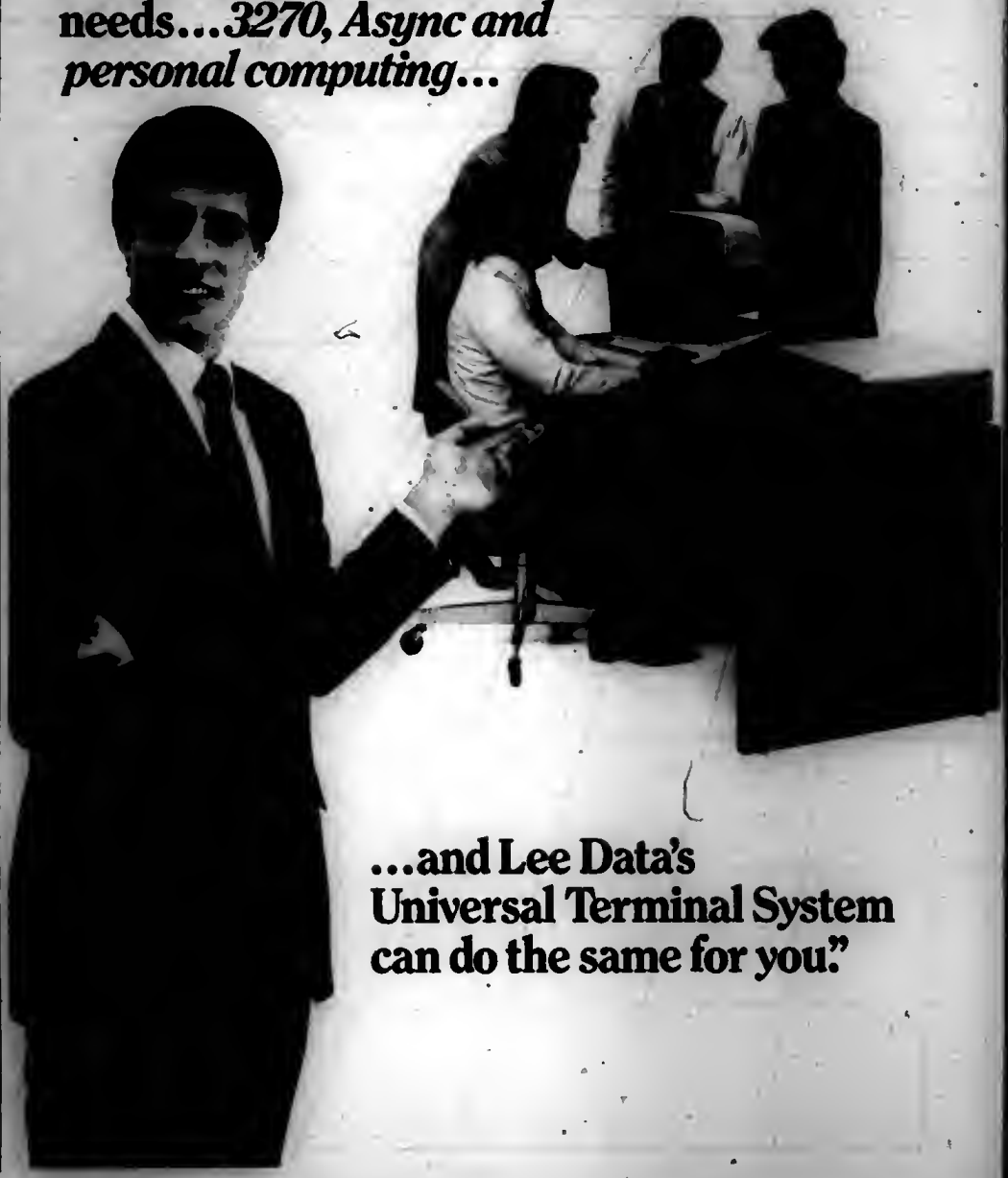
NATICK, Mass. — Prime Computer, Inc. has unveiled the latest version of its Medusa system for computer-aided design, said to offer improved ease of use, flexibility and solid modeling capabilities.

Medusa runs on Prime's 50 Series of 32-bit, virtual memory minicomputers under the Primos operating system.

Enhancements include support for Midasplus, Prime's multiple indexed data access system. This interface permits users to link Medusa design information with data in Midasplus files.

Modules range in price from $5,000 to $35,000 from Prime at Prime Park, Natick, Mass. 01760.

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...and Lee Data's Universal Terminal System can do the same for you."

Courseware Serves Honeywell's DPS 6/CAN-8

PHOENIX — Honeywell, Inc.'s Information Systems Division has announced courseware packages from Compris, Inc. for Honeywell's DPS 6/CAN-8 computer-aided instruction system.

The courseware is designed for eighth grade through university level and includes seven lessons in report writing, spelling, punctuation, grammar, communication skills for the secretary and reading comprehension. Two levels of skills acquisition are available for most course topics, a spokesman said. Each can stand alone or be integrated into a matrix of interdependent skills.

Honeywell's CAN-8 running on the DPS 6 line provides computer-based training on a dedicated system which can accommodate up to 128 simultaneous users. Purchase prices for the Honeywell Compris courseware range from $6,500 to $9,000 with lease rates of $150 and $200/mo per package. Honeywell Information Systems can be contacted through P.O. Box 8000/T-60, Phoenix, Ariz. 85066.

Accounting Tool Fits VAX, PDP

MARSHALLTOWN, Iowa — Specialty Computer Services, Inc. has announced an accounting system for Digital Equipment Corp. VAX-11 and PDP-11 computers.

Written in structured Cobol, six packages are available with stand-alone capabilities or total interfaces to general ledger from each of the subsystems. Subsystems include accounts receivable, accounts payable, payroll and order entry with inventory control.

A peripheral package for sales analysis produces sales, cost and profit analysis from inventory, accounts receivable and unfilled orders. Packages are available with or without support and start at $2,500 per subsystem and $1,500 for sales analysis to end users.

Demonstrations are available for PDP-11s running TSX-Plus with Cobol-Plus at $100 per module plus media; cost will be applied to purchase. The firm is at 112 S. Second Ave., Marshalltown, Iowa 50158.

'CPG' Speeds Development Of Program

DALLAS — Texas Instruments, Inc. has announced a Cobol Program Generator (CPG) said to speed the development of update and report programs for TI's DS990 and Business System computers.

Based on Phoenix Systems, Inc.'s System-80, CPG features a new menu structure, separate help screen for menu selection and a rewrite of the user's manual.

CPG runs under DX10 and Dnos operating systems. The Cobol programs it generates run under DX10; Dnos; DX10 Micro; Ryan-McFarland Corp.'s COS990; Digital Research, Inc.'s CP/M 86; and others.

Available at the end of August, the software will cost $6,000 for a hard disk version and $5,200 for flexible disk and tape versions. TI's Data Systems Group can be reached through P.O. Box 402430, H-659, Dallas, Texas 75240.

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Wadsworth Electronic Publishing Co. has introduced **Statpro**, a series of integrated statistics, graphics and data management programs for the Apple Computer, Inc. Apple II, II+ and IIe. The package is written in Apple Pascal and is compatible with the Pascal operating system. It costs $1,995 from the firm at the Statler Office Building, 20 Park Plaza, Boston, Mass. 02116.

Individual Software, Inc. has announced a training software package, **Professor DOS**, for the IBM Personal Computer. The package reportedly uses graphics, animation, sound and color and costs $59.95 from the vendor at 24 Spinnaker Place, Redwood City, Calif. 94065.

DSD Corp. has announced a three-dimensional electronic spreadsheet program for Digital Equipment Corp.'s Professional 350 microcomputer. C-Calc runs under DEC's PO6 operating system for the Pro 350 and costs $600. DSD is located at Suite 201, 12620 120th Ave. N.E., Kirkland, Wash. 98033.

Sheppard Software Co. has announced price cuts in its two graphics-oriented project management packages. **Micropert 0**, for the IBM Personal Computer and Compaq Computer Corp. Portable Computer, has been reduced from $500 to $200. **Micropert 2**, for the Tektronix, Inc. 4050 series, has been reduced from $4,000 to $500. The firm is located at 4750 Clough Creek Road, Redding, Calif. 96002.

Context Management Systems, Inc. has announced Version 2 of its **Context MBA** management decision support package for IBM and Hewlett-Packard Co. microcomputers. Enhancements in Version 2 include telecommunications and a custom forms capability. The enhancements allow users of IBM and HP micros to use spreadsheets of data base information from a mainframe, convert it into a graph and transmit the information (with a cover letter) to another microcomputer or mainframe, the vendor said. The package costs $695 for the IBM version and $795 for the HP version, the vendor said from 23864 Hawthorne Blvd., Torrance, Calif. 90505.

Personal Computer Products has announced a package to transfer files from the Radio Shack Model II, 4, 12 and 16 microcomputers to IBM Personal Computers and XT micros. Included in the package is a communications program for the IBM Personal Computer, as well as an adaptor which allows connection of the two systems. The file transfer package will reportedly transfer any file whether it be Ascii, uses embedded control codes, compressed binary formats, encrypted data bases, high-level language programs, electronic spreadsheet data and word processor files. The package costs $89.95, the vendor said from Suite C-18, 1400 Coleman Ave., Santa Clara, Calif. 95050.

Executive Information Systems, Inc. has announced a package which allows Fortune Systems, Inc. Fortune 32:16 microcomputers to run both Unix operating system and Digital Research, Inc.'s CP/M operating system. Called **Mimix**, the package was developed by Touchstone Software Corp. of Seal Beach, Calif., and will be marketed by Executive Information Systems. Mimix can be used to transfer existing CP/M applications to Unix systems, or develop CP/M applications under Unix. The package includes a complete set of Unix commands for CP/M file transfers and features menus. The package costs $595, the vendor said from 1888 Century Park E., Los Angeles, Calif. 90067.

Borland International has announced **Menu Master**, a jobstream control program for users of Digital Research, Inc.'s CP/M operating system. The package consists of one general purpose set of menus which enable users to perform any typical operating system function. The package also includes a file menu, a word processing menu and a development menu. The package costs $195, the vendor said from Suite 129, 4320 Stevens Creek Blvd., San Jose, Calif. 95129.

Altos Computer Systems, Inc. has announced the availability of the Ryan-McFarland Corp. **RM/COS** operating system on its 16-bit 68000 microcomputer, which accommodates up to 16 users. The price of the Altos 68000 system with RM/COS software ranges from $14,490 to $20,490 for 20M bytes to 85M bytes of Winchester hard disk storage. The firm is located at 2641 Orchard Pkwy., San Jose, Calif. 95134.

Clyde Digital Systems, Inc. has added a feature to its **Calout** package designed to enable the system to transfer disk files between a Digital Equipment Corp. RSTS/E or VMS-based minicomputer system and any Digital Research, Inc. CP/M-based microcomputer. Priced at $1,500, the Calout package is available from the vendor at 3707 N. Canyon Road/3-E, Provo, Utah 84604.

Corvus Systems, Inc. has announced an interface that will allow users of Digital Equipment Corp.'s Rainbow 100 personal computer to hook up to a Corvus Omninet local-area network, which includes the sharing of such peripherals as mass storage devices and printers. The transporter card sells for $495 from the vendor at 2029 O'Toole Ave., San Jose, Calif. 95131.

Chang Laboratories, Inc. has introduced **Graphplan**, a business software package that includes spreadsheet, statistical commands, graphics and sorting and ranking capability. Graphplan runs on personal computers operating on Digital Research, Inc.'s CP/M operating system, and the IBM Personal Computer under Microsoft, Inc.'s MS-DOS. Priced at $395, Graphplan is available from the vendor at Suite 200, 5300 Stevens Creek Blvd., San Jose, Calif. 95129.

JMI Software Consultants, Inc. has introduced **Bastoc**, a software tool for use in migrating programs written for the Digital Research, Inc. CP/M environment or Unix operating systems. Bastoc translates programs written in one of several varieties of Basic to C language. Priced at $300, Bastoc is available from the vendor at 1422 Easton Road, Roslyn, Pa. 19001.

Philips Information Systems, Inc. has incorporated Sorcim Corp.'s Supercalc electronic worksheet program into its Series 3000 workstations. Applications available on Supercalc include sales forecasting, tax planning, and portfolio analysis. On the Series 3000, data created and processed on the worksheet can be incorporated into word processing documents. The workstations can also be interconnected for electronic mail using the Philips Information Management Facility. Supercalc on the Series 3000 costs $295 from Philips at 4040 McEwen, Dallas, Texas 75234.

Phase One Systems, Inc. has announced **Mtrans**, a utility which converts Microsoft, Inc. Basic programs to executable Phase One Systems Oasis Basic. All converted programs reportedly support Oasis multiuser functions. The 8-bit version of Mtrans costs $245. The 16-bit version costs $345 from Phase One at Suite 830, 7700 Edgewater Drive, Oakland, Calif. 94621.

Directory Targets IBM Micro

CHICAGO — WIDL Video Publications has announced *The Blue Book for the IBM Personal Computer*, a "where to find it" directory of hardware and software.

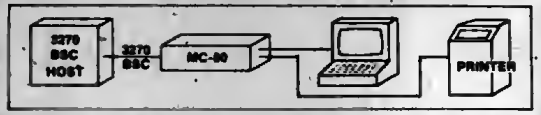
Designed for users of IBM and compatible microcomputers, the book can be used to locate programs in a variety of subject areas, including accounting, science and word processing, the vendor said.

Included with each product listing is a general description of the product, special notations about system requirements, programming language, memory and disk requirements and suggested retail pricing.

The 328-page book costs $24.95 from WIDL at 5245 W. Diversey, Chicago, Ill. 60639.

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The Computer Book Boom

- *Where to send proposals*
- *Upcoming books*
- *Why publishers need DP experts*

By George Harrar
Senior Editor, Features

The venerable world of book publishing is finally catching up with the frenzied, high-stakes computer industry.

In April, Doubleday & Co. paid $1.3 million — the largest sum in trade paperback history — for rights to a software catalog. Bookstore shoppers who balk at a $6.75 price tag for a general-interest paperback buy handfuls of machine-specific guides at $10 to $20 each. Computer titles may outsell fiction in the B. Dalton chain by year's end.

"It's almost cultural hysteria with regard to personal computers," says Hayden Books Vice-President David Edwards.

"Computer books and magazines are the





CW Photo by Kathleen Gow

IN DEPTH

fastest growing category in publishing history," says Mark Greenberg, Warner Publishing vice-president.

"We have deals coming up in the $5 million to $10 million range for combination software and bookware," says John Brockman, the New York agent riding high on the new wave of computer publishing.

The computer book boom means more choice for the DP manager as reader and more opportunity for the DP manager as author.

Computer-related titles are nudging out cookbooks and diet paperbacks for prime shelf space, filling 20% of some stores. Technical bookstores such as Kroch's & Brentano's in Chicago carry almost every DP title printed, even if just one copy of the more esoteric computer science books on robotics engineering, for instance. In 1971, Kroch's shelved 600 computer titles; today the active inventory numbers nearly 1,600.

The DP manager with the writing touch can virtually pick his publisher. As John Wiley & Sons' George Novotny says: "We're running after the writers who should be writing but don't and away from people who shouldn't write but do."

Publishers need writers so much that often quality can be overlooked — or rather, lack of quality justified in the rush to get a book to market. "If you're writing in computer science," says Holt, Rinehart Editor Tom Gornick, "you can get anything published, as evidenced by what's on the shelves. I won't say they're bad books, because few bad books get published, but they're mediocre. Mistakes occur because of speed. A lot of fast money is being made."

When talking money and computer books, you have to talk about John Brockman. "I decided 14 months ago to get into computer books," says the New York agent whose well-respected client list includes Amory Lovins and John Lilly. "I spent eight months going to shows and making the contacts. I spent the time opening up the market."

He opened the market with a bang. Brockman joined Doubleday with Stewart Brand of *The Whole Earth Catalog* fame. The result: a record-breaking deal for *The Whole Earth Software Catalog* on the basis of a 12-page proposal. Brockman linked Harper & Row with *Infoworld* magazine in a $600,000, six-volume series which will include machine-specific software and hardware reviews. His third coup matched Simon & Schuster with *PC World*. The publisher guaranteed the magazine a $600,000 advance and $200,000 in production costs on a 10-volume series of paperbacks aimed at users of IBM and IBM-compatible personal computers.

Why the computer publishing frenzy now?

"The fact is," Brockman says, "there will be about 25 million desktop computers bought in the next two years, and each person buying a desktop will purchase eight to 10 books." By his count, the market for microcomputer books figures to between 200 million and 250 million in two years.

Behind the Frenzy

Clearly, guides to personal computers are driving the book boom. California publisher Sybex cashes in with micro guides to Apple Computer, Inc.'s Apple II, the Commodore Business Machines, Inc. VIC 20 and 64, Radio Shack's TRS-80 and virtually every other model selling to the home market.

Sybex' Mike Alves says, "We're watching the best-selling hardware and software charts like everyone else. The manuals and documentation of software are not written very well." The lack of layman's clarity in manuals gives book writers the opportunity to do the job of software writers — explain the technical to the vast nontechnical, computer-buying public.

Sybex sells *Introduction to Wordstar* and *Practical Wordstar Uses*. Alves says, "If Wordstar's documentation was as good as our books, then we wouldn't have written the books."

Besides machine and software guides, publishers are finding software packages to market. Where they don't have the expertise (and usually they don't), the large New York publishers buy it.

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by John Brockman, Simon & Schuster signed an agreement this spring to distribute software packages created by Bruce & James, Program Publishers, Inc. This arrangement provides Bruce McLoughlin and Jim Edlin with a powerful distributor for their Wordvision "people-literate" word processing program geared to the IBM Personal Computer.

Scrambling for Exposure

Software companies are scrambling for bookstore exposure while publishers seek sales space in computer stores.

"We had one of the best-selling software companies come ask us to represent them recently," says Brockman. "They were publishing through OEMs and getting zero name recognition. If they come out in IBM, they're considered an IBM product. If they come out in a Commodore, they're known as a Commodore product. They wanted me to represent them and be published with all the hoopla and skill that a New York publisher would bring to publishing a Jane Fonda book."

Achieving reward and recognition in the computer publishing field is unusual. James Martin finds both in the DP world of data bases, man-computer dialogues, communications satellite systems, data planning methodologies — and whatever else he turns his pen to.

In the public mind, Peter McWilliams comes closest to star status, despite *Time's* appraisal that he was "born with an incurable case of the cutes." In fact, this self-styled pundit of the information age is the only author writing on computers to make *Publishers Weekly's* best-seller list. His unorthodox *The Word Processing Book* (Prelude/Ballantine) reached the "almost in the top 10" category for trade paperbacks.

In June, McWilliams finished his sixth revision in the last year. He continues to send out free updates to any reader who sends in a self-addressed stamped envelope. Now in its 12th reincarnation with 170,000 copies in print, *The Word Processing Book* brings strong opinion, oddball illustrations and breezy, friendly prose to a timely subject. In the computer book business, that mix equals best-seller.

There's another mix all too common, though — an inexperienced author, an error-littered manuscript and a nontechnical publishing house staff rushing books into print. Editing and production for traditional trade hardbacks still function on monthly or yearly deadlines. But computer books often race into print in weeks, carrying with them the bugs to render programs and machines useless.

"Right now, the quality is probably at its lowest," says Elwin Lages, computer book buyer for Ingram Book Co., one of the nation's largest wholesalers. "Everyday another small company comes out with a book. But the bigger publishing houses are starting to come in and maintaining their traditional quality. Prentice-Hall bought about a half-dozen companies this year."

(Continued on In Depth/6)

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IN DEPTH

Where to Buy DP Books

Small specialty publishers such as Yourdon Press know their readers well and how to reach them by direct mail. But many worthy DP books go unnoticed each year simply because publishers cannot justify the advertising money needed to find a wide audience.

Local college and technical bookstores are where DP managers can turn to locate business and reference titles. Publishers identify two of the country's best technical booksellers as Kroch's & Brentano's, 29 S. Wabash Ave., Chicago, Ill. 60603 (312-332-7500); and McGraw-Hill Bookstore, 1221 Ave. of the Americas, New York, N.Y. 10020 (212-997-4100).

Both stores supply catalogs detailing the latest titles and mail order information. Two other book sources are Baker & Taylor's *Computer Book Catalog*, available from the Marketing Services Department, 6 Kirby Ave., Somerville, N.J. 08876 and *Computers: A Comprehensive Guide*, a $2 publication of Yes! Bookshop, 1035 31st St. N.W., Washington, D.C. 20007.

Book wholesaler Baker & Taylor briefly describes 400 recent titles from all major publishers, including many business titles. Orders are shipped the day after receipt. Even if a book is not listed, Baker & Taylor usually can still get it for you.

The Yes! Bookshop wades through the mass of micro books and presents a selective guide. Author Cris Popenoe works at the Washington-based store and will field questions by letter or phone (202-338-7874) on the expanding world of micro books. The 75-word catalog summaries emphasize the level of sophistication so that the DP manager can avoid books that claim depth but don't deliver it.

Kroch's Vice-President Harlan Smith describes James Martin as "head and shoulders above the rest" in sales. "We might carry 150 to 200 of one of his titles." For other writers, 20 books sold from the store in a year reflects solid sales. Sometimes just one copy of a book sits in stock, but usually the store maintains a three-book minimum.

Crowded Shelves

The proliferation of micro books squeezes shelf space. "We notice an awful lot of duplication in titles," Smith says. "There must be 10 to 12 user guides to the IBM, and more coming."

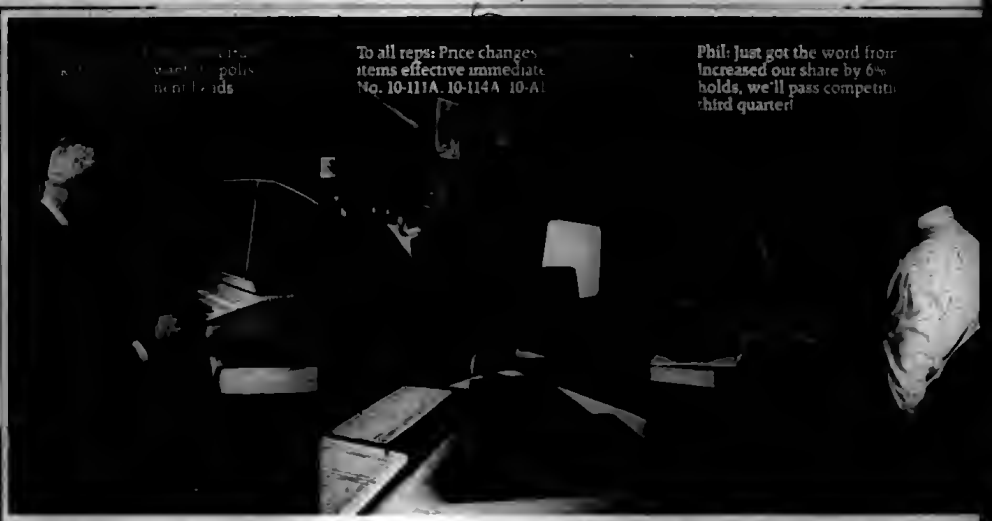
In 1971, Kroch's & Brentano's carried 600 computer titles. One year ago, the number was 1,100. This year, the store stocks almost 1,600 different books. "Prentice-Hall has come out with 150 new titles in the last six months," Smith says, "and we bought all of them."

McGraw-Hill's book buyer laments the glut of micro titles. Tom Pleitscher says simply: "I wish people would stop publishing this stuff." What they publish, he must buy to retain the "we carry everything" reputation.

"In DP, I'll take everything I know about," Pleitscher says, "about 200 to 300 per year from all publishers. That's everything except overly academic or extremely technical books, such as proceedings from a New Delhi conference."

For McGraw-Hill, "Micros is where the unit sales really are." The store doesn't sell as many DP books as micro titles but grosses about as much because DP books regularly carry $30 to $35 price tags while the micro paperbacks average $15.

Micro books move off the shelf faster because of quick sales and quick obsolescence. "In micros, a lot of books die within six months," Pleitscher says. "DP books last five to



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Hayes

The age of the single station microcomputer is over. Sooner, rather than later, the 8- and 16-bit computers scattered throughout your company will need to communicate. And once personal computing extends beyond the desktop, it can present the DP/MIS staff with a tangle of mis-matched hardware, user-hostile software, and a situation that can quickly get out of hand.

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We've also included indicator lights that let users see what their Smartmodem is doing, while an audio speaker lets them hear it. (Is the remote system down, or was the line just busy? This way, they'll know.)

Hayes has prepared a directory of the many communications pro-

COMPUTER BOOKS

IN DEPTH

Guides to Published Titles

10 years. Martin books go back to the beginning of time, it seems."

Computer tities account for 20% of McGraw-Hill Bookstore sales, evenly divided between DP and micro books. DP classics still selling well are Donald Knuth's *The Art of Computer Programming* (Addison-Wesley, vols. 1 & 2) and Madnick and Donovan's *Operating Systems* (McGraw-Hill, 1974).

Pleitscher's perspective encompasses all publishers in all aspects of computer books. "Telecommunications is one area where there could be more books," he says. "And robotics — there are very few books."

Tom Bennett buys computer books for B. Dalton's 670 stores nationwide. "Somebody needs to figure out what the top three machines are going to be by Christmas and put out books on them," he says. "As hardware goes, so goes the sale of a book."

As hardware has spread throughout the office and into the American home, so, too, have books. "The subject of computers is one of four top sellers in our stores," Bennett notes, "along with cookbooks, fiction and diet and health."

No one in the publishing industry tracks the total number of computer books sold or breaks out categories such as DP or micro titles. The perspective comes from experience.

"A few years ago," Bennett says, "most every computer book published would sell." Now — "Introductions, that particularly is an overpublished subcategory. The flood of computer books is worrying. There's going to be a lot on the same subject."

In deciding which of similar titles to carry, Bennett judges the name of the publisher and author, the timeliness and importance of subject and the advertising that will make the book known to the buying public. The lesson here is that s writer must be sure his manuscript will not be rushed into print and then left to sell itself. A writer can legitimately inquire before signing a contract what type and amount of advertising the publisher intends.

Dalton instituted a best-selling computer book list. As of May 27, *101 Programming Tips and Tricks for the TI-99/4A* (Arcsoft) topped the list. *Using and Programming the TI-99/4A* (Tab) followed in second and Peter McWilliams' *The Personal Computer Book* (Prelude/Ballantine) in third. Prentice-Hall's *Inside the IBM PC* reached eighth place. McWilliams' *The Word Processing Book* registered 19th.

Ingram Book Co. acts as middleman between publisher and bookstore. Elwin Lages picks computer books for the industry's largest wholesaler to distribute.

"The first series of books on the Commodore 64 will fly off the shelves," Lages says. "The Texas Instruments books are at that position now, but in six months the market will be saturated. If a book comes out on the Commodore 64 which is essentially an elementary book, it has s chance of becoming a best-seller."

Lages calls manuals "garbage written by technical people with no sbility or training to show others how to use software." Experience convinces him that each personal computer owner buys eight to 10 books telling him how to use it. Apple users average 10 to 12 books bought within the first year. "The manuals for Dbase II and Wordstar are almost useless for the novice," Lages says. "Where a program has sold 100,000 [copies], consumers need something other than the owner's manual. Manufacturers sre learning slowly and taking s look at the books being written about their software."



grams published for the Smartmodems. It's available at computer stores nationwide. And, for your users who have an IBM® Personal Computer, we've also developed our own incomparable software.

Smartcom II.® Complete menu-driven software for the IBM PC. Even first-time communicators will find success with Smartcom II. The screen prompts them in the simple steps it takes to create, send, receive, list, edit, name and re-name files.

And as complicated as it may sound to receive, print and store data completely unattended, the task is easily managed with Smartcom II.

That's because we took the best features of existing communications software and customized them specifically to take full advantage of Smartmodem's capabilities.

The program reduces lengthy dial-up and log-on sequences to a single keystroke. It stores communications parameters for 26 remote systems in a directory on Smartcom II. Calling or answering a system listed in the directory requires just a few quick keystrokes. Plus, there's an on-line help feature that explains prompts, messages and parameters. So you won't have to.

"Help" is one of the special functions performed by Smartcom II that are assigned to IBM function keys. (However, the special functions may be re-defined to any keys you wish.)

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Smartmodem Specifications
Low Speed Data Format: [Smartmodem 1200 and Smartmodem 300] Serial, binary asynchronous 7 or 8 data bits, 1- or 2-stop bits, odd, even or no parity.
High Speed Data Format: [Smartmodem 1200] Serial, binary asynchronous, 7 data bits with even, odd, or fixed parity or 8 data bits and no parity.
Dialing Capability: Touch-Tone and rotary-dial pulse dialing.
Commands: (unnecessary with Smartcom II software) A: Immediate answer. A/: Repeat last command. C: Transmitter Carrier. D: Dial command, including simple dialing, waiting for second dial tone, auto-dialing and other features. E: Local echo. F: Full/half duplex. H: Switch hook. M: Audio monitor. O: On-Line. P: Pulse dialing. Q: Quiet mode. R: Reverse originate/answer. S: 17 "Set" commands allow user to select various operational parameters, such as dialing speed, escape code character, number of rings to answer on, etc. Z: Checks operational parameters above. T: Touch-Tone dialing. V: Verbose result codes.
Result Codes: (can be numerical/verbose): OK/OK: Command line ok. 1/Connect: Carrier detected. 2/Ring: Phone is ringing. 3/No Carrier: Carrier lost or never heard. 4/Error: Error in command line. 5/Connect 1200: Carrier detected at 1200 bps. (For Smartmodem 1200 only.)
Audio Monitor: Two-inch speaker with volume control.
Rear Panel: On-off switch, power jack, RS-232C connector, modular phone jack connector, monitor volume control.
Operation: Full or half duplex.
Data Rate: Up to 300 bps and 1200 bps for Smartmodem 1200. Up to 300 bps for Smartmodem 300.
Interface: RS-232C.
Intelligence: 2.0+ microprocessor with 4K byte control program for Smartmodem 1200. 2.2 microprocessor with 2K byte control program for Smartmodem 300.
Modem Capability: Bell System 103 or 212A compatible originate or answer mode for Smartmodem 1200. Bell System 103 compatible originate or answer mode for Smartmodem 300.
Receive Sensitivity: –10dBm for Smartmodem 1200. –45dBm for Smartmodem 300.
Transmit Level: –10dBm.
Registration: FCC Registered for direct connect to the nationwide phone system. Connects with modular jacks RJ11W, RJ12C, RJ13W, RJ12C, RJ11W, RJ12C. Power Pack: U.L. listed 120VAC, 60Hz, 15 VAC output.
Size: 1.5" x 3.5" x 9.0".

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IN DEPTH

(Continued from In Depth/3)

Despite the mass of new books, Lages still cites subjects he cannot find enough on, subjects that still need writers. "I'm looking for software applications books on software similar to [Visicorp's] Visicalc, anything in business related to micros, word processing books, financial programs such as Multiplan, Lotus, Supercalc."

Ingram began carrying software after this year's Comdex show and shipped its first packages last month. "Computer book sales will not slow down in the next few years," Lages predicts, "but the revolution is in software, both combination books and software sold independently."

Here follows a partial rundown of the new as well as the traditional computer book and software publishers. All expressed interest in receiving proposals directed to the editors listed.

Karl Karlstrom
Senior Editor
Computer Science & Applied Mathematics
Prentice-Hall, Inc.
Englewood Cliffs, N.J. 07632
(212-591-2261)

Karl Karlstrom carries in his pocket a list of 150 to 175 topics looking for an author. "Last year," says Prentice-Hall's editor of three decades, "I assigned two from this list and about 20 other books." He used to spend weeks driving up and down Rt. 128 in Massachusetts searching out writers. Now he can scan the ever-increasing number of computer trade newspapers and magazines.

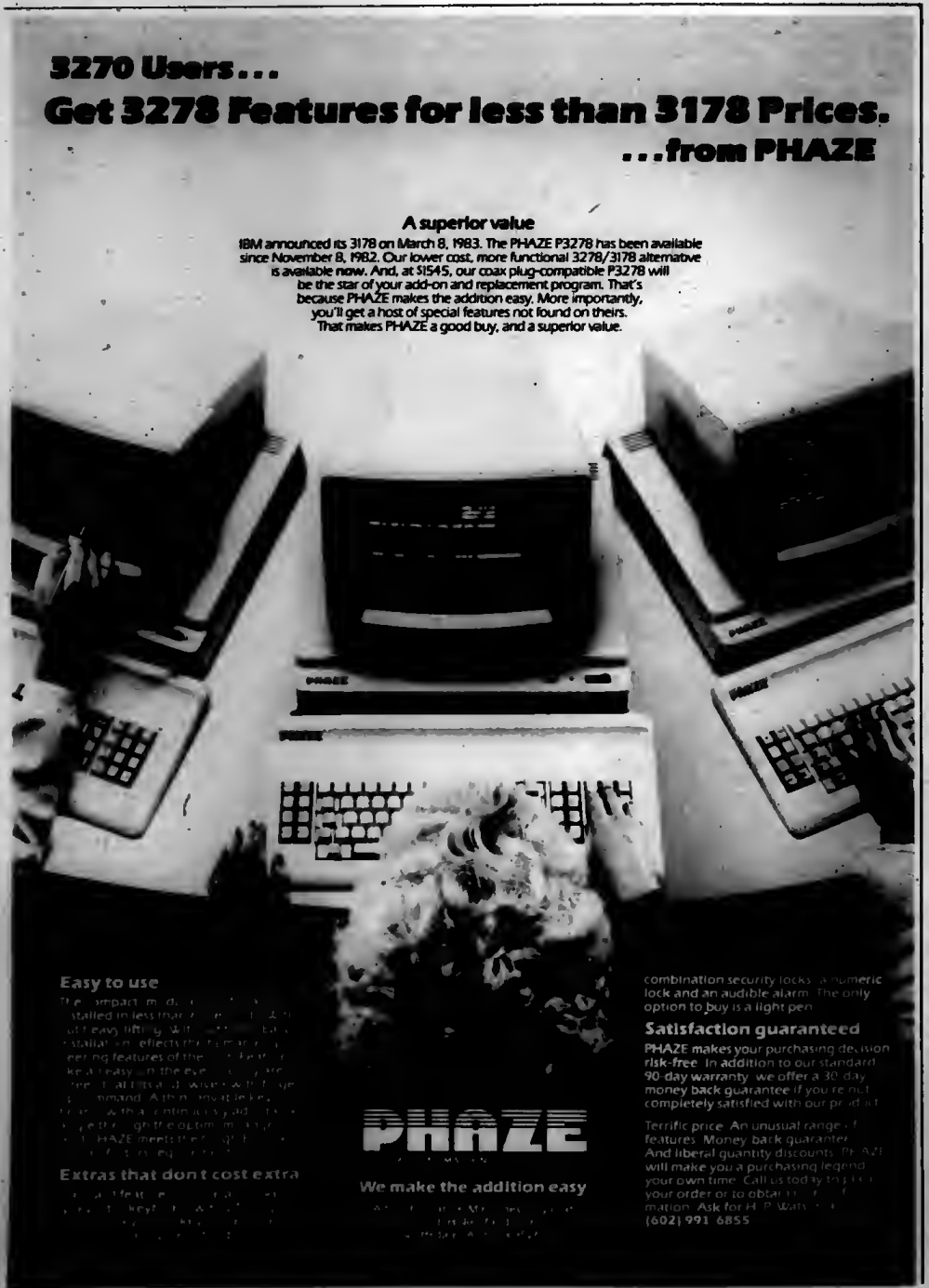
Karlstrom identifies graphics as a largely untouched area. "Probably only 20% has been published so far of what the market needs. What has been done hasn't gone much beyond spreadsheet, and that leaves a whole world. In financial accounting, for instance, fitting curves together needs more than simple bar graphs."

Communications is a second underpublished area, and data processing management a third.

"The DP manager is beginning to realize he is a manager and not just running a software area or whatever," Karlstrom says. New books can help that manager develop general management skills. To be publishable, a book must show the potential to at least reach Prentice-Hall's break-even point of 2,000 to 3,000 copies sold.

Karlstrom remembers Prentice-Hall's initial computer books of the 1950s and '60s as targeting two audiences: the applied mathematicians designing computers and the engineers building them. In 1962, the editor met the writer who has become the most prolific and best-selling of data processing book authors.

"I published James Martin's first book in 1964," Karlstrom says. "Somewhere around his fourth book, he gave me proposals for his next three, and that knocked me out. He writes two or three books simultaneously from his farm in Vermont or his home in Bermuda. I





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CW 7/18

IN DEPTH

remember asking him, 'Don't you get sick of it?' He said, 'Yes, but when I do I put this book over here and pick up that one.'"

In May, Prentice-Hall released Martin's *Software Maintenance: The Problem and Its Solutions* and *Managing the Data Base Environment*. In production is *An Information System Manifesto*. Due in-house this summer: *Programs Which Are Provably Correct*.

Martin sells so well (just shy of $2 million gross last year) that Karlstrom has never taken one of his books out of print.

While many authors are writing on word processors and submitting on disks, the chronicler of the computer age commits one of the cardinal sins of publishing and gets away with it — he sends in his manuscripts in pencil. "I guess he doesn't type," Karistrom says.

From would-be James Martins, Karlstrom asks for a detailed outline of five to 20 pages. "It's a lot easier to help an author from an outline than if he sends in one-half of a manuscript," he says. Typically, the editor concentrates on broadening the appeal, or salability, of the book.

Manuscripts arriving on disk can save five or six months of production time. Word processing saves the author time as well.

"I have heard estimates," Karlatrom says, "that writing on disks takes 100 to 200 hours less than typing on paper."

"Thanks to Beehive's TOPPER, we'll save more than half a million dollars in claims processing next year."



Savings of as much as $534,000 will be realized by Blue Cross and Blue Shield of North Carolina next year, according to Harry Reynolds, Director of Systems and Programming. It's the result of teaming a number of TOPPER personal computers with the company's IBM 3033 mainframe.

Several months ago, Blue Cross and Blue Shield of North Carolina installed eight TOPPER personal computers in the Professional Claims Section of Benefits Administration for provider claims processing. In a test program, they discovered that TOPPER allowed faster, more efficient processing with less dependence on the central computer. Soon forty-two more TOPPERs will join the original eight to handle numerous segments of the claims processing activity.

Prior to TOPPER, adjudicators processed claims by hand and then passed them on to data-entry operators for preparation of computer-readable tapes. Now, the adjudicator edits claims directly on TOPPER and stores data on diskette. Twice a day, this stored data is transmitted to the host computer under 3270 bisync protocols for complete processing.

Reynolds notes that claims processing is now much faster, and more accurate as well. "The TOPPERs include an edit program that catches errors before the data is transmitted to the main computer. That speeds overall claims processing." As side benefits of this distributed processing approach, system response is the same regardless of the number of users. And adjudicators can continue working even if the main computer goes down.

"We chose TOPPER personal computers because they offered the most practical solution for interfacing to our IBM mainframe," says Reynolds. "In addition, TOPPER is a real value in personal computers and Beehive supports them with on-site service."

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Larry Hager
Editor, Reference Books
Van Nostrand Reinhold Co., Inc.
135 W. 50th St.
New York, N.Y. 10020
(212-265-8700)

"We are doing books for the personal computer," says Larry Hager. "The TRS-80, the Apples and IBMs — that's a market I can't avoid."

But clearly, this editor of reference books prefers Van Nostrand's traditional focus. "Our strength in the past which will continue into the future is not in the $10.95 B. Dalton book, but in the rather stiffly priced professional and reference book."

Software Testing Techniques by Boris Bizer carries a 1983 publication date but actually was printed in late fall 1982. In less than a year, the $30 book has sold more than 11,000 copies.

This summer, the 150-year-old publishing house will print *Word Magic: A Guide to Understanding and Evaluating Word Processing*, by Michael Scriven.

An upcoming book of major importance to Van Nostrand is the *Software Engineering Handbook*, a compilation of articles viewing software from an engineering perspective.

Hager uses the "McGraw-Hill philosophy" that a book should generate a minimum of $100,000 in sales. "The rule of thumb is that a published book should have a three- to five-year life and sell 6,000 to 10,000 total."

Generally, advances to writers under contract are small ("certainly less than $10,000") or nonexistent. "Many writers in professional and reference publishing don't seem to require advances," Hager says.

The money comes to the author in the form of royalties. "For many years, textbook publishers offered a flat 15% royalty. Now most computer book publishing is based on 10% to 15% on the net price (the list price less any discount the publisher grants certain booksellers, such as college stores). The royalty can go higher in some cases if it appears the book will generate major sales." An example of "major sales" is Pacifico Lim's *CICS/VS Command Level With ANS Cobol Examples*, which sold 20,000 copies in a year.

Hager's professional and reference books generally list for $24.50 to $34.50. The main outlets are the B. Dalton and Waldenbook chains.

Van Nostrand sells by direct mail also, sharing lists with Wiley and McGraw-Hill and buying names from college marketing groups.

Besides publishing 70 new computer titles this year of about 360 total, Van Nostrand also distributes for Lifetime Learning Publications of California and Petrocelli Books, Inc. of New Jersey.

Coming this fall from Lifetime Learning are *Development and Maintenance of Large Software Systems* (Antonio Pizzarello) and *Computer Software*

(Continued on In Depth/18)

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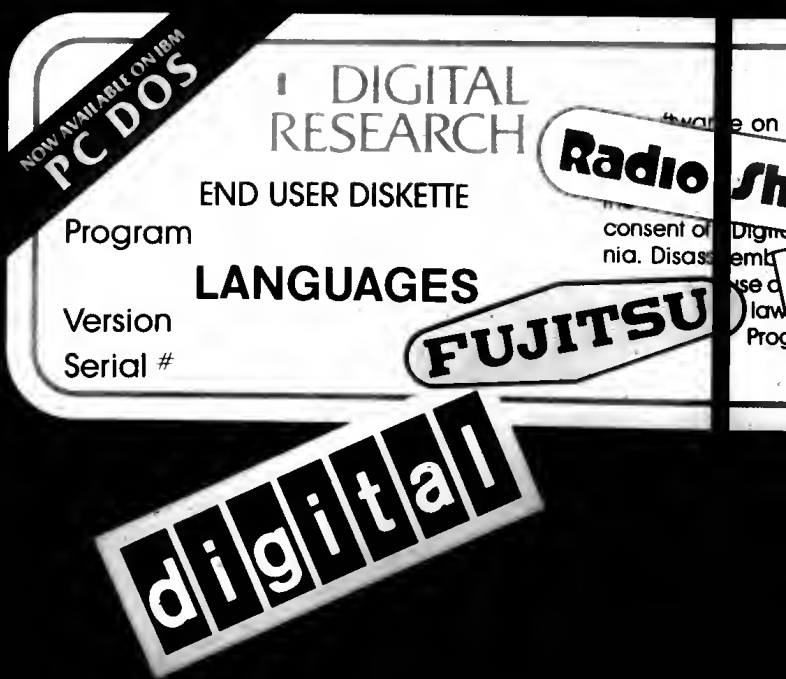
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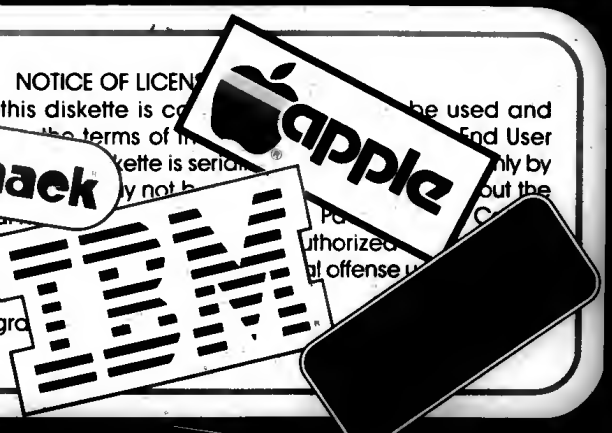
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CBASIC is the industry standard commercial dialect of the popular BASIC language. The original implementation of CBASIC as a pseudo-code interpreter conserves random access memory, allowing more memory for application programs. CBASIC Compiler is a direct enhancement of CBASIC that runs 5 to 10 times faster in execution than most BASIC Products.

Implemented as a native code compiler, CBASIC Compiler allows you to write, test and finally, combine separate modules to create completed programs. Multiple line functions can be externally defined and have local variables, much like the procedural, block-structured compilers of Pascal and PL/I. This efficient, modular, top-down approach makes CBASIC Compiler programming significantly faster to write and easier to maintain. You are also given maximum flexibility to define your own extensions to the language.

CBASIC Compiler includes a fully-integrated set of graphics statements and functions. They provide a powerful, device-independent graphics capability, including figure drawing, a graphics character set, multiple line styles, flexible viewing area control and graphic input.

When you consider all its capabilities, CBASIC Compiler is the best language choice for programming in a sophisticated business environment.

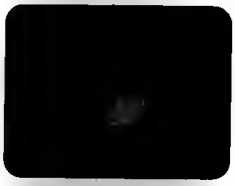
- Native code compilation
- Multiple line functions externally defined with local variables
- Powerful graphic statements and functions
- 14 decimal digit accuracy
- Comprehensive 32K byte string processing
- Expanded file processing techniques
- Support of multi-user operating systems
- Compatible with Display Manager and Access Manager
- Compatible with CP/M Graphics



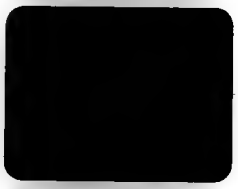
Pascal/MT+

Best for work where programming speed and accuracy count.

Pascal is a highly-structured language originally designed for teaching programming. Data types are extensive and matched to your programming needs. These qualities, plus compactness and execution speed, have made Pascal highly regarded as a microcomputer development language.



Digital Research's Pascal/MT+ is a direct-compiling dialect of the full ISO standard Pascal—greatly enhanced and extended to maximize the inherent versatility and portability of Pascal. The Pascal/MT+ native code compiler executes much faster than traditional p-code Pascal compilers.



Pascal/MT+ supports floating point real numbers for scientific applications and decimal numbers for arithmetic precision in business applications. ROM-able code can be generated for industrial applications. And in educational environments, Pascal/MT+ is easily-learned and never outgrown.





ch has the best

Pascal/MT+ is the best software development tool available today. The Pascal/MT+ programming system includes a compiler, a linker, a run-time support library, a disassembler, and a symbolic program debugger. And Digital Research has developed a unique SpeedProgramming Package that locates syntax errors, a major timesaver in program development.

There is no better Pascal for program development:

- Superset of ISO standard Pascal
- Separate modular compilation
- Efficient native code
- ROM-able machine code
- Complete development tools
- Enhanced arithmetic functions
- Extended data types
- Powerful overlay capabilities
- Compatible with Display Manager and Access Manager
- Compatible with CP/M Graphics
- 8087 numeric processor support

Level II COBOL

The best for mainframe-level development.

COBOL (COmmon Business Oriented Language) is the most widely-used language for mainframe computers. Today, the total investment in COBOL programming in the U.S. exceeds 100 billion dollars, greater than the Gross National Product of Switzerland.

Level II COBOL gives you the full facilities of mainframe COBOL on your 8-bit or 16-bit microcomputer, allowing you to develop mainframe programming with the interactive facilities of a microcomputer. Level II COBOL is the ideal choice for developing applications in a corporate environment where COBOL software and expertise are already present.

Level II COBOL is a mainframe-level compiler for ANSI 1974 COBOL meeting the highest possible standards certified by the General Services Administration to "High with Zero Errors."

Digital Research also supplies software development tools to make Level II COBOL highly attractive as a development environment. Native Code Generators allow faster program execution than intermediate code, by providing translation of the finalized program into highly-optimized native code that executes 5 to 10 times faster. The ANIMATOR logic display system allows the programmer to interactively observe and debug the logical path of program execution at the level of source code statements.

Considering the advantages of portability of software between mainframe and microcomputers, Level II COBOL is the obvious choice for large corporate environments:

- Inbuilt sort-merge capability
- Segmentation
- Inter-program communication
- Multi-key indexed sequential file handling
- Run-time specification of external file names and program names
- Use of dynamic paging to allow implementation of programs greater than 64K on 8-bit microcomputers
- Powerful interactive screen handling



t of everything

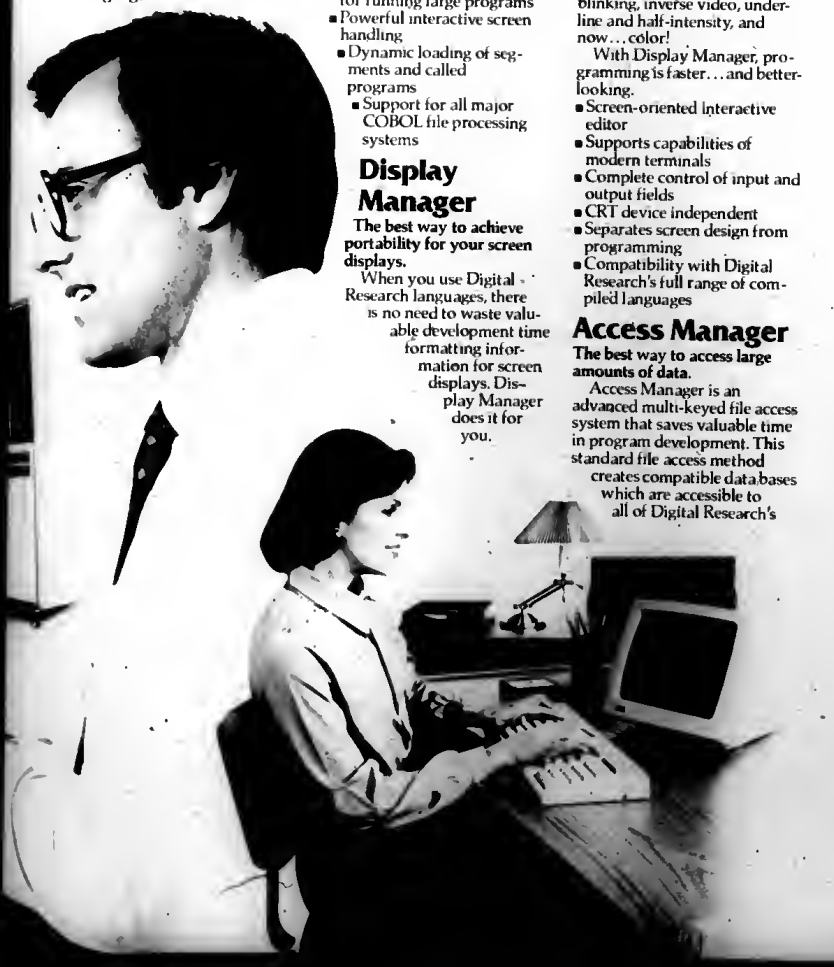
CIS COBOL

The most popular COBOL for microcomputers.

CIS COBOL is the complete system for compiling, testing, debugging, and executing standard COBOL programs. It's called CIS COBOL because it is Compact, Interactive and Standard... and has become the most widely favored version of the popular ANSI 1974 COBOL language.

With CIS COBOL, you can run existing mainframe and minicomputer programs on your microcomputer. Or you can use a microcomputer to develop COBOL software for larger systems. Or you can create COBOL software to use on your microcomputers to take advantage of COBOL's powerful data processing functions:

- ANSI 1974 standard
- Compact intermediate code for running large programs
- Powerful interactive screen handling
- Dynamic loading of segments and called programs
- Support for all major COBOL file processing systems



Display Manager

The best way to achieve portability for your screen displays.

When you use Digital Research languages, there is no need to waste valuable development time formatting information for screen displays. Display Manager does it for you.

Display Manager provides you with a full-screen editor that works as a stand-alone system to help you design images that will run on any CRT terminal as part of your application programs.

Literal data as well as input and output fields may be placed anywhere on the screen. And Display Manager gives you full use of the visual dynamics available on modern terminals: blinking, inverse video, underline and half-intensity, and now... color!

With Display Manager, programming is faster... and better-looking.

- Screen-oriented interactive editor
- Supports capabilities of modern terminals
- Complete control of input and output fields
- CRT device independent
- Separates screen design from programming
- Compatibility with Digital Research's full range of compiled languages

Access Manager

The best way to access large amounts of data.

Access Manager is an advanced multi-keyed file access system that saves valuable time in program development. This standard file access method creates compatible data bases which are accessible to all of Digital Research's

in languages.

compiled languages. This flexibility becomes significant when using Access Manager in multi-user environments, where the system's file and record locking features are essential.

Access Manager is fast, versatile and intelligently organized for efficiency. Separate index and data files are maintained, eliminating the need to sort data files or reorganize indices when adding or deleting records. And the index can be read in any direction for faster access to data.

The result is a file access system that provides fast, efficient access, efficient use of disk space, and no overhead in file maintenance . . . with an important bonus of compatibility with a wide variety of languages. Access Manager provides invaluable savings in both program development time and program execution time:

- Multiple keys
- Automatic support for duplicate keys
- Indexed access to data records
- B-tree index structure
- Multi-user support with record and file locking
- Efficient memory utilization
- Compatible with all Digital Research-compiled languages

PL/I

A high-performance professional programming language.

PL/I is a powerful, easy-to-learn, all-purpose language that rivals both FORTRAN for scientific applications and COBOL for commercial applications. This makes PL/I the best language to meet all the needs of a professional programmer.

Digital Research has created the first implementation of PL/I for microcomputers.

Based on the widely-used ANSI Standard Subset G, Digital Research PL/I programs are easily ported from micro to mini to mainframe. And, by following a few simple rules, your programs are also portable from mainframe to mini to micro!

The Digital Research PL/I program development system includes an optimizing native code compiler, a relocatable assembler, a relocating linker, a library manager, a cross-reference generator and a comprehensive library of useful built-in functions. Together, these tools provide a fast, integrated system for developing your own scientific, commercial and system software.

Best of all, the programs you create with PL/I are extremely efficient. That's the result of the state-of-the-art optimization and decades of compiler experience behind Digital Research's PL/I. It's no wonder that only Digital Research can offer you PL/I for microcomputers.

- Structured control statements
- Fixed binary integers
- Single and double precision floating point
- 15 digit arithmetic
- Bit string operations
- Character string operations
- Full control of compiler storage allocation
- User controlled error handling
- Supports Display Manager and Access Manager
- Supports CP/M Graphics

C

The best language for systems implementation.

C is an advanced, elegant programming language built for coding power and execution speed with a minimum of constraints. C gives skilled software developers the ability to take full advantage of the inherent structure of the computer, including large model support on the 8086. C is ideal for performance-critical applications and systems-level programming.

The Digital Research C programming development system includes a feature-packed compiler, linker, and a comprehensive run-time library which contains a wide range of utilities. Digital Research C is a complete implementation of the C language, fully compatible with the UNIX* standard C language. Built into the compiler is a sophisticated error-checking facility which contains many of the features of the UNIX program, LINT. The run-time support library handles everything from transcendental functions to input-output. Altogether, Digital Research C is an integrated answer to all your programming needs.

C is not for everyone. But for the experienced software developer, it is one of the most powerful programming tools available.

- Full C language implementation compatible with UNIX Version 7
- Single and double-precision floating point
- 8087 numeric processor support
- Enhanced programming/debugging tools
- Comprehensive utility package included
- Multiple 8086 memory model support

DIGITAL RESEARCH™



Our portability gives your software the best of all worlds.

	8080/8085/Z80 CP/M MP/M II	8086/8088/80186 CP/M-86 Concurrent CP/M-86 MP/M-86	8086/8088 IBM PC DOS	MC-68000 CP/M-68K
CBASIC Compiler	*	*	*	*
Pascal/MT+	*	*	*	*
C		*	*	*
PL/I	*	*	*	TBA
Display Manager	*	*	*	TBA
Access Manager	*	*	*	TBA
CIS COBOL	*	*		*
Level II COBOL	*	*	*	*
COBOL ANIMATOR	*	*	*	*
Level II COBOL Native Code Generator		*	*	*

And the best is yet to come.

Digital Research's ongoing development efforts in languages, graphics, and productivity tools express our continuing commitment to supporting important new systems and operating environments as they emerge.

That's your guarantee that your investment in software development will continue to return a maximum of utility and longevity, even as the microcomputer industry continues to grow and change at rapid speed.

The design quality, technological foresight and business integrity of Digital Research is reflected in the portability and upward-compatibility of our software products.

No other company in the world offers the scope and depth of microcomputer systems software that Digital Research does today.

But that's only the beginning. The microcomputer industry has a long way to go. And Digital Research is committed to lead the way by offering the best of everything for professional software development.

Get more background.

For more detailed technical information about Digital Research's languages, productivity tools, and graphics products—and the location of your local CP/M Library™ dealer—call (800) 227-1617, Ext. 400. In California call (800) 772-3545, Ext. 400.

DIGITAL RESEARCH

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When you get your own subscription to *Computerworld* you get ALL the news delivered fresh to your desk every week – more news than you get from any other computer publication.

But that's not all. You also get a series of special *Computerworld* publications designed especially to serve your growing need for specialized information. Publications like:



Every two months, *Computerworld OA* gives you a detailed, thoughtful look at all the happenings in Office Automation. Each issue examines a particular area of OA, giving you a complete overview of the state of the art in that area and other aspects of OA. Recent issues have examined overall OA planning Strategies, Workstations, OA Software, Personal Computers, and Management Support Systems.

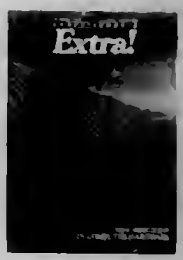


Our newest publication does for communications what OA does for Office Automation. *Computerworld on Communications* covers the fast-merging worlds of computers and communications with in-depth articles on important trends and current topics. Subjects which have been or are scheduled to be covered in *CW on Communications* in its two 1983 issues include: Voice and Data Communications, Local Area Networks, Communicating Personal Computers, Local Loops, Convergent Technologies, and Telecommunications Management.

Computerworld Buyer's Guides *are* a new type of reference source for the computer-involved professional. *CW Buyer's Guides* are broken down by topic, for easy reference, and include useful articles on that issue's topic, as well as complete company and product listings. With thousands of companies and tens of thousands of products now in the computer market, and new ones becoming available every day, these guides can be an indispensable reference source. Three *Buyer's Guides* are to be produced in 1983: *Computer Systems* (August); *Terminals and Peripherals* (October); and *Software* (November).



Computerworld Extra! is a special, extra issue of *Computerworld* which we publish from time to time in order to give extra attention to an important current topic. Every issue of *Extra!* is devoted entirely to a complete look at a single area of topical importance. Next Extra! is on Microcomputers.



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If you subscribe using the form below, we'll send you a FREE copy of *Computerworld's Best Feature Articles of 1982.* This 96-page compilation of selected In-Depth articles was selected by our editors from the 1982 issues of *Computerworld, Computerworld* OA and *Extra!* to provide you with valuable insights and an important source for reference in the months ahead. It includes more than a dozen important articles such as "New Risks for MIS Managers", "Lessons from Wells Fargo" (on computer crime), "Legal Contracts" and "The User Wave in Information Engineering."



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1. BUSINESS/INDUSTRY (Circle one)

End Users
10 Manufacturer (other than computer)
20 Finance/Insurance/Real Estate
30 Medicine/Law/Education
40 Wholesale/Retail Trade
50 Business Service (except DP)
60 Government-State/Federal/Local
65 Public Utility/Communication Systems/Transportation
70 Mining/Construction/Petroleum/Refining
75 Other (User)_____

Vendors
80 Manufacturer of Computers, Computer-related Systems or Peripherals
85 Computer Service Bureau/Software/Planning/Consulting
90 Computer/Peripheral Dealer/Distributor/Retailer
95 Other Vendor_____

2. OCCUPATION/FUNCTION (Circle one)
11 President/Owner/Partner/General Manager
12 VP/Assistant VP
13 Treasurer/Controller/Financial Officer
21 Director/Manager/Supervisor DP/MIS Services
22 Director/Manager of Operations/Planning/Administrative Service
23 Systems Manager/Systems Analyst
31 Manager/Supervisor Programming
32 Programmer/Methods Analyst
35 OA/WP Director/Manager/Supervisor
38 Data Comm Network/Systems Mgmt
41 Engr/Scientific/R&D/Tech Mgmt
51 Mfg Sales Reps/Sales/Marketing Mgmt
60 Consulting Mgmt
70 Medical/Legal/Accounting Mgmt
80 Educator/Journalist/Librarian/Student
90 Other_____

3. COMPUTER INVOLVEMENT (Circle all that apply)
Types of equipment with which you are personally involved either as user, vendor or consultant
A. Mainframes/Superminis
B. Minicomputers/Small Business Computers
C. Microcomputers/Desktops
D Communications Systems
E. Office Automation Systems

IN DEPTH

(Continued from In Depth/8)

Protection and Licensing (G. Gervaise Davis III).

Al Reuben, Software Editor
or Robin Eckhardt, Book Editor
Simon & Schuster
1230 Ave. of the Americas
New York, N.Y. 10020
(212-245-6400)

' "There ought to be a whole catalog of software." From this simple statement grew the 12-page proposal leading to the largest trade paperback deal in publishing history.'

When it comes to the high-stakes computer book bidding of recent months, three publishers stand out: Doubleday, Harper & Row and Simon & Schuster.

"I'm certainly concerned about the Doubleday and Harper deals," says S&S's Al Reuben, "but not mine. There are details about our deal with *PC World* that the public doesn't know. *PC World* is going to purchase 'x' number of books from us."

S&S guaranteed a $600,000 advance and $200,000 in production costs for *PC World Reference Library*, a 10-volume series intended for users of IBM and IBM-compatible personal computers. The staff of San Francisco-based *PC World* magazine will produce the paperbacks for publication beginning in spring, 1984.

In another move this year into mass marketing, S&S teamed with Bruce & James, Program Publishers, Inc. Bruce & James creates the software packages, such as the Vision line of personal computer programs, and S&S provides the distribution channels to traditional booksellers, computer store dealers and mass merchandisers. The first product of this union in August will be Wordvision, a $49.95 word processing program for the IBM Personal Computer.

S&S will not rely solely on Bruce & James for software. The venerable New York publisher of six decades intends to develop its own games, applications and educational programs beginning in 1984. The market is wide open here for freelancers. Reuben says proposals submitted to him should specify "what the program is, what it does and, of course, the background of its developer. A demo disk would be great if the program is that far along."

The software market for space games is saturated, Reuben says, "but the concept of those programs translated to other areas, such as education, would do well."

In the book area, Assistant Editor Robert Gehorsam says S&S looks for machine-specific as well as general trade titles. Examples in the latter category are:

- *A Loving Computer*, by John Dvorak, a look at the man-computer interface in the future.
- *Computer Gamesmanship*, by chess master-turned-software master David Levy.
- *The Robot Revolution*, by Tom Logsdon, describing the past and proposing the future of robotics.

"The general-interest area is wide open," Gehorsam says. "We don't want to hear about the development of artificial intelligence again and again, but if you have a creative angle on it . . ."

He mentions computers and society, computers and the arts as still viable subjects — "but we're soon going to run out of general-interest overviews. People will want to grow up with their machines."

Wendy Eakin
Director, Yourdon Press
Suite 3830
1133 Ave. of the Americas
New York, N.Y. 10036
(212-391-2828)

Amidst the publishing giants, Yourdon Press' eight to 10 books a

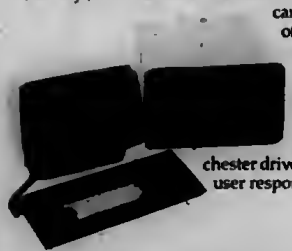


Braegen's Way Puts True 16-Bit Personal Computing Inside A Low-Cost, 3274-Compatible Cluster Controller.

Several companies now offer personal computing capability as part of their 3270 terminal package. Their approach, however, has built-in problems—primarily because the personal computing *isn't* built-in, but just bolted on.

Braegen's way works better. Because our new 8410 Cluster Controller features integral personal computing, the user gets maximum processing versatility and performance while the DP Manager gets maximum control and cost savings.

More Versatility And Power. You can attach up to eight ergonomic display stations to the 8410—and with one keystroke turn them all into true 16-bit PCs. You can access a wide range of applications software operating under MP/M-86. And you can upgrade from 128 to 640 Kb of RAM—or integrate a 10-Mb Winchester drive for optimum multi-user response and security.



More Control And Economy. Undoubtedly, it is the control you gain and the dollars you save that really distinguish the 8410. Because the PC capability is integrated into the controller, each user is tied into the overall corporate communications network—giving the DP Manager control over critical computer resources.

Just as important is the considerable cost control achieved. First, the 8410 *starts* as a more cost-effective alternative, even operating only as a 3274 remote cluster controller. But by adding multi-user PC capability, the 8410 can save you thousands of dollars—and a lot of space—in equipment alone. There's no investment in additional software for each workstation, or in additional communications lines. Expensive resources—such as letter-quality printers and Winchester drives—can be shared. And a unique remote-maintenance feature that lets our Field Engineers dial up and diagnose the 8410 from any location reduces down-time costs.

For ten years now, Braegen's way has worked for an impressive base of customers. The 8410 with integral personal computing; its low-cost counterpart, the 8400 Remote Cluster Controller with up to 16 attachments; as well as our nationwide sales and service network are just three persuasive reasons why.

Put Braegen's way to work for you. Call or write The Braegen Corporation, 20740 Valley Green Drive, Cupertino, CA 95014 (408) 725- 1252; TWX: 910-338 7332.

BRÆGEN



Fault Tolerance at a Very Tolerable Price.

Before you spend hundreds of thousands of dollars on a fault tolerant computer, hold on! Because NoHALT introduces the NH-1000: a fault tolerant microcomputer at a price that'll send the competition back to their pocket calculators. Base price: $25,000.

No More Down Time
The redundant architecture of the NH-1000 incorporates dual system control processors, dual disk drives and controllers, dual data busses, dual line cords and dual power supplies. All working in tandem continuously so you never have to worry about being down during critical real-time applications.

No Revenue Loss
The NH-1000's exhaustively duplicated architecture assures you that even in the most catastrophic failure you won't lose business or profits because of computer down-time. You can lose a disk drive, system control processor, power supply or data bus and still remain on-line, with no data loss.

Totally Flexible
The NH-1000 would be an excellent distributed front end for your PC's, since it accommodates a multi-user environment and supports PC applications on your existing terminals.

Put it all together, and it's a tolerably great accomplishment for $25,000.

For more information and the name of your local NoHALT dealer, write or call:
NoHALT Computers
1750 New Highway
Farmingdale, NY 11735
(516) 420-0974

NoHALT

IN DEPTH

year target one narrow audience — the DP community.

Just printed is Edward Roeske's *The Data Factory: Data Center Operations & Systems Development*. This book examines the problems operations and systems groups experience in becoming an efficient data factory.

Robert Block's *The Politics of Projects*, another 1983 release, takes a case-study approach to how things get done in the office.

An easy-to-read analysis of auditing issues will come this summer from Alan Brill — *Building Controls Into Structured Systems*.

While others chase the fast money in personal computer book publishing, Yourdon remains steadfast to its hallmark — structured techniques. Books should explain how a system or technique works in what particular situation on what scale. Director Wendy Eakins says, "We look for workbooks, case studies and analysis techniques. We're management oriented, not language or hardware related."

George Novotny, Publisher
Professional and Reference Books
John Wiley & Sons, Inc.
605 Third Ave.
New York, N.Y. 10158
(212-850-6000)

Ten divisions of John Wiley & Sons, Inc. publish computer books, roughly 20% of the publisher's total 1,000-book output. In the professional and reference area, 75 to 100 computer books remain in print. Publications within the past year include *Design of Operating Systems*, *Programmer Productivity* and *Computer Architecture*.

Professional and Reference Publisher George Novotny says, "We're always looking for authors. We determine the area that we want to publish in and then go look for an author. There is a fairly high mortality rate from idea to published book: It takes 20 to 40 solid proposals to get one final book."

Novotny sees data communications as a particularly open subject area, including local-area networks. "Robotics and artificial intelligence are two areas where most publishers I know are looking for manuscripts," he says. "Protocol is hot right now. Some other subjects are economic applications, new programming, the office of the future."

Two of Novotny's notable writers are Gary Brown, author of six books, including the recently released *Surviving With Financial Application Packages for the Computer* (with Donald Sefton), and Daniel McCracken, who wrote the Cobol and Fortran books that trained many in the current generation of programmers.

McCracken, former president of the Association for Computing Machinery, wrote seven books on those two languages between 1961 and 1976.

Catching Up With the Computer Revolution heads the list of current books coming from Wiley's Business Data Processing group. This volume, published jointly with the *Harvard Business Review*, explores the role the computer has played and should play in helping businesses run more efficiently.



A simple analogy that explains why Plexus

The division of labor.

A very simple idea that says when you divide a job up among a lot of people or machines, the job goes faster.

In our case, this principle translates to a multiprocessor architecture, up to seven, to be exact.

And that's the reason our family of four UNIX™-based systems will get you where you want to go. Very quickly.

Multiprocessors. No waiting.

Most commercial UNIX-based systems being peddled these days rely on a single processor to do everything. No wonder they drag their feet as system loading increases.

Not us. We're all speed. All the time.

We distributed the UNIX operating system to where it does the most good.

Our 16-bit Intelligent Communications Processors rush terminal I/O to and from as many as 40 users. While also taking care of low level communications so as not to interrupt the CPU.

Our 16-bit Mass Storage Processors handle disk I/O chores. So you get fast disk access and can keep data bases and important files easily accessible.

The performance that results is close to that of a VAX™ 11/780.

And costs about $200,000 less.

The Plexus Family. Speedsters all.

There's our Z8000 series, the economical 16-user P/25, or the 40-user P/40.

Or choose the newly introduced P/35 or P/60 models for 32-bit performance.

They're both based on the 12.5 MHz MC68000. With the addition of a few, shall we say, high performance modifications.

Like an on-board 4K cache memory. 16K of high-speed on-board RAM. A high-speed memory map. And a 32-bit memory path.

COMPUTER BOOKS

IN DEPTH

Editor John Mahaney says, "I'm looking for books that show nonspecialists the real productivity uses of computers. There is a tremendous amount of hype within the field. Competition is so intense. Vendors tout equipment as being the solution to almost any problem. I'm looking for books that address these issues."

Upcoming books include:

- *The Amazing Race: Japan and the United States in the Information Age*, an industry overview by William Davidson.
- *Artificial Intelligence and Executive Decision-Making*, by David Hertz, an AI researcher at the University of Miami.
- An as-yet untitled book by Steven McClellan judging likely winners and losers among computer industry competitors by assessing the factors of success.

Mahaney publishes 18 books per year, a small part of Wiley's overall computer list of about 200 titles. Manuscripts on technical topics may be submitted to James Gaughan, editor of computer science.

Phil Pochoda
Editorial Director
Doubleday & Co., Inc.
245 Park Ave.
New York, N.Y. 10017
(212-953-4561)

In the casual restaurant conversation, one remark stood out: "There ought to be a whole catalog of software." From this simple statement grew the 12-page proposal leading to the largest trade paperback deal in publishing history. In April, Doubleday preempted the planned auction of U.S. book rights to *The Whole Earth Software Catalog* by bidding $1.3 million.

This staggering sum effectively buys Doubleday a way into the computer book publishing scene it had largely ignored before. Phil Pochoda, Doubleday's editor on the project, says, "*The Whole Earth Software Catalog* will help us immeasurably in selling other computer books. It sets up channels to computer stores which we have never had."

Pochoda envisions a fall 1984 publication date and a 200,000 first printing for a 200-page book presenting subjective, judgmental reviews of software. The former "demon programmer" for IBM and Control Data Corp. mainframes in the 1960s expects *Software Catalog* to earn profits for Doubleday one year after publication on through the decade.

The contract with Point Foundation and editor Stewart Brand calls for three revisions within the first four years. Brand currently edits *The Whole Earth Catalog*, an all-and-everything oversize book with 2.5 million sales.

For its part, Doubleday "guaranteed something we never had before — to ship books within six months of receiving camera-ready mechanicals," Pochoda says.

Doubleday was willing to pay the most ever and agree to unusual production terms to secure a foothold in the fastest growing segment of book publishing. Now the influential trade publisher must decide whether to hire staff and generate its own

(Continued on In Depth/23)



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IN DEPTH

New Books of Note

Software Project Management, by Loesh (Lifetime Learning Publications): A how-to book of management strategies for developing software so that projects come in on time and on budget.

Database, A User's Guide, by Date (Addison-Wesley, November): This primer on data bases uses examples from SQL and Dbase II systems.

8086/8088 16-Bit Microprocessor Primer, by Morgan and Waite (McGraw-Hill/Byte Books): The impact of the 16-bit micro analyzed, with details on co-processing, alter-ego processors and supply chips.

The Electronic Office, A Guide for Managers, by Stafford, Smith and Reese (Dow Jones-Irwin): Guidelines on designing, acquiring and managing an integrated office automation system.

Corporate Information Systems Management: The Issues Facing Senior Executives, by McFarlan and McKenney (Dow Jones-Irwin): How MIS fits into the corporation, focusing on balance of power within the organization and the changes in information management required as computers increasingly run a company.

Executive Planning With Basic, by Bui (Sybex): Answers to forecasting and planning questions come from using this collection of Basic programs.

The Manager's Guide to Computer Security Management, by Parker (Prentice-Hall, September): The widely known Donn Parker offers 20 safeguards against losses resulting from three basic threats — human error, omission and natural disaster. This handbook helps managers design a computer security plan tailored to their individual businesss.

Advanced Database Machine Architecture, by Hsiao (Prentice-Hall): Eleven papers analyze the architectures of nine data base machines being developed worldwide.

Software Maintenance, by Parikh and Zvegintzov (Computer Society Press): This tutorial features 31 papers by 37 authorities on software maintenance — what it is, how to manage it and the areas of current research.

Data Communication Components: Characteristics, Operation, Applications, by Held (Hayden): This book explains more than 25 components of data communications networks, including the cost/benefit trade-offs to be considered before incorporating any into a network.

The Theory of Relational Databases, by Maier (Computer Science Press): Relational algebra, representational theory, query modification and functional dependencies are covered in this book intended as a second course in data bases. Concepts and results in relational data base theory are discussed.

A Structured Approach to Systems Testing, by Perry (QED Information Sciences): A presentation of 42 tools and 15 techniques for testing computer applications under a structured methodology.

SCAN/370—The system that automatically simulates the execution of every cleanly compiled COBOL program. SCAN/370 gives you critical analysis information that reveals how each program will execute at run time—information not obtainable via cross referencers, flowcharters, or other analysis tools.

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COMPUTER BOOKS

(Continued from In Depth/21)

software or simply contract with outsiders who have the expertise.

While the *Software Catalog* catches the media spotlight, other book proposals from DP managers still are welcomed by Pochoda.

John Sulzycki
Computer Science Editor
Reston Computer Group
Reston Publishing Co.
11480 Sunset Hills Road
Reston, Va. 22090
(703-437-8900)

Reston Publishing, a subsidiary of Prentice-Hall, created the Reston Computer Group in June to consolidate book and software lines. These products grew in sales from $5 million to $11 million in the last year.

"The whole area of communications needs books," says new Computer Group Publisher Larry Benincasa. Reston is filling the need this year with *Micros and Modems* by Jack Niles and *Data Communication: Networks and Distributed Processing* by Hugh Black. "We're also looking," Benincasa says, "for books on how to create and maintain good documentation," from both the user's and developer's perspectives.

The emergence of the micro market led Reston naturally into software. Its first product, "Paint," allows the home user to create color paintings by computer.

Coming soon from the Reston Computer Group:

- "Movie Maker," an animation package for the Atari and Apple;
- "The Dolphin and the Pearl," a game based on the interaction of fiction and graphics; and
- Herb Kohl's mass-market computer books for children.

Michael McGrath
Acquisitions Editor
Sybex Computer Books
2344 Sixth St.
Berkeley, Callf. 94710
(800-227-2346)

Since its inception in 1976, Sybex has published nothing but computer books. On a base of 67 current titles, new releases hit the market at the rate of one per week. Coming in August: *Computer Power for Your Law Office*, by Daniel Remer, a guide to hardware and software options for the lawyer swamped with briefs, files and other paperwork.

Frenchman Rodnay Zaks founded Sybex to offer training courses and seminars on the use and design of microprocessors and microcomputers. Seminar participants complained repeatedly about poor documentation, and so Zaks wrote his first book, *Microprocessors*. The quick sell-out of 5,000 copies convinced Zaks of the wide-open market for books by experts. Slowly Sybex shifted to become predominantly a book publisher, developing some of the first titles in several areas, including *The CP/M Handbook*.

At Hayden Book Co., the actual production cycle is extremely short — less than eight weeks from manuscript delivery on disk or tape to bound book, according to Vice-President David Edwards.

Today Sybex stands out for its in-house computerized book production, which eliminates most of the costly and error-prone hand labor. The "author-diskette-to-phototypeset-galley" system achieved a 15-day submission-to-bound-book production cycle on the first *Timex/Sinclair 1000/ZX81*. The normal production schedule lasts three to six months.

Spokesman Mike Alves identifies areas of particular interest at Sybex right now as financial management packages, Microsoft, Inc.'s Multiplan, Lotus Development Corp.'s 1-2-3, Ashton-Tate's Dbase II.

"We need professional explainers," Alves says. "There are never enough good writers around to

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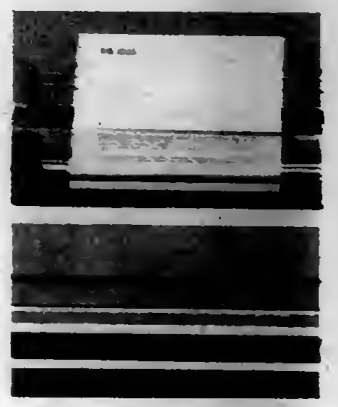
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HEWLETT PACKARD

IN DEPTH

translate the technical into the explainable. Oftentimes the developers are not as good at writing documentation as they are at writing programs. That's why many publishers are doing as well as they are."

If an author needs a computer to write a contracted book, Sybex will get one for him.

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Tom Gornick
Senior Acquisitions Editor
Holt, Rinehart & Winston
383 Madison Ave.
New York, N.Y. 10017
(212-872-2000)

Parent company CBS supplies the needed capital and technical experts to fuel Holt, Rinehart & Winston's rapid expansion into computer publishing. The IBM Personal Computer series, now nine books long, ranges from "here's how to unbox the machine" to sophisticated software guides.

"We had the IBM series going before the *PC World* deal," says Acquisitions Editor Tom Gornick, "so we felt good. They (Simon & Schuster) bought the series without any book in hand." If the kind of deal didn't bother Gornick, the size of it did. "The big deals have raised the expectations of authors by 1% or 2%," he says. "That's a real problem."

How many computer books does Holt, Rinehart publish? "As many as possible," Gornick answers. "We take books and do them in several versions — generic for college, an academic version with pedagogical aids such as test questions, then a machine-specific book." The writer working on a personal computer makes multibook publishing fast and inexpensive.

Gornick puts writer and composing house in direct contact so that the manuscript coming in by disk is formatted for easy typesetting.

David Edwards, Vice-President and General Manager
Hayden Book Co., Inc.
50 Essex St.
Rochelle Park, N.J. 07662
(201-843-0550)

The first-time author looking to sell a book to Hayden should submit a proposal including a detailed table of contents, the rationale for writing the book (which could translate into a preface) and, if possible, a sample chapter to show writing style.

This computer publishing specialist rushes to get to the trade market with books to match new products. "We try to anticipate the machines and software that will be released," says Vice-President David Edwards. "The actual production cycle is extremely short, less that eight weeks from manuscript delivery on disk or tape to bound book. We have the facility to take a disk from any machine and use it to drive a typesetter."

Hayden's technical staff, which includes Pascal programmers, often comes up with ideas and then searches out authors to fit the topics.

Advances of $10,000 to $15,000 are not unusual from this publisher doing almost $10 million in annual sales.

"We and everyone else," Edwards says, "are publishing what are really software tutorials. The next couple of years the growth in books will be aimed at the end user who has purchased the personal computer. For instance, he'll buy Wordstar and then is at the mercy of the documentation.

" Books selling extremely well are tied to the low-end computers, such as the VIC, Texas Instruments and the new Sinclair. It's almost cultural hysteria with regard to personal computers. Everyone is buying," he says.

To make books even more available to computer buyers, Hayden and Commodore Business Machines in June signed a distribution agreement called the first of its kind between a publisher and a microcomputer manufacturer.

Hayden will supply four books geared to Commodore's VIC series home computer. Commodore will buy the books outright and then package them for distribution through 20,000 retail outlets, such as Sears, Roebuck & Co.

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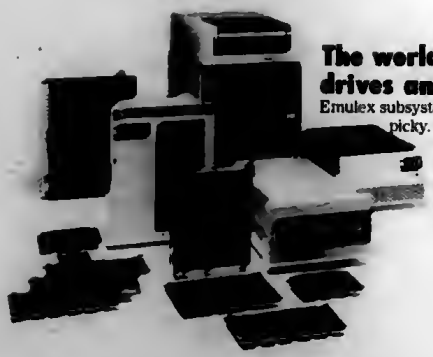
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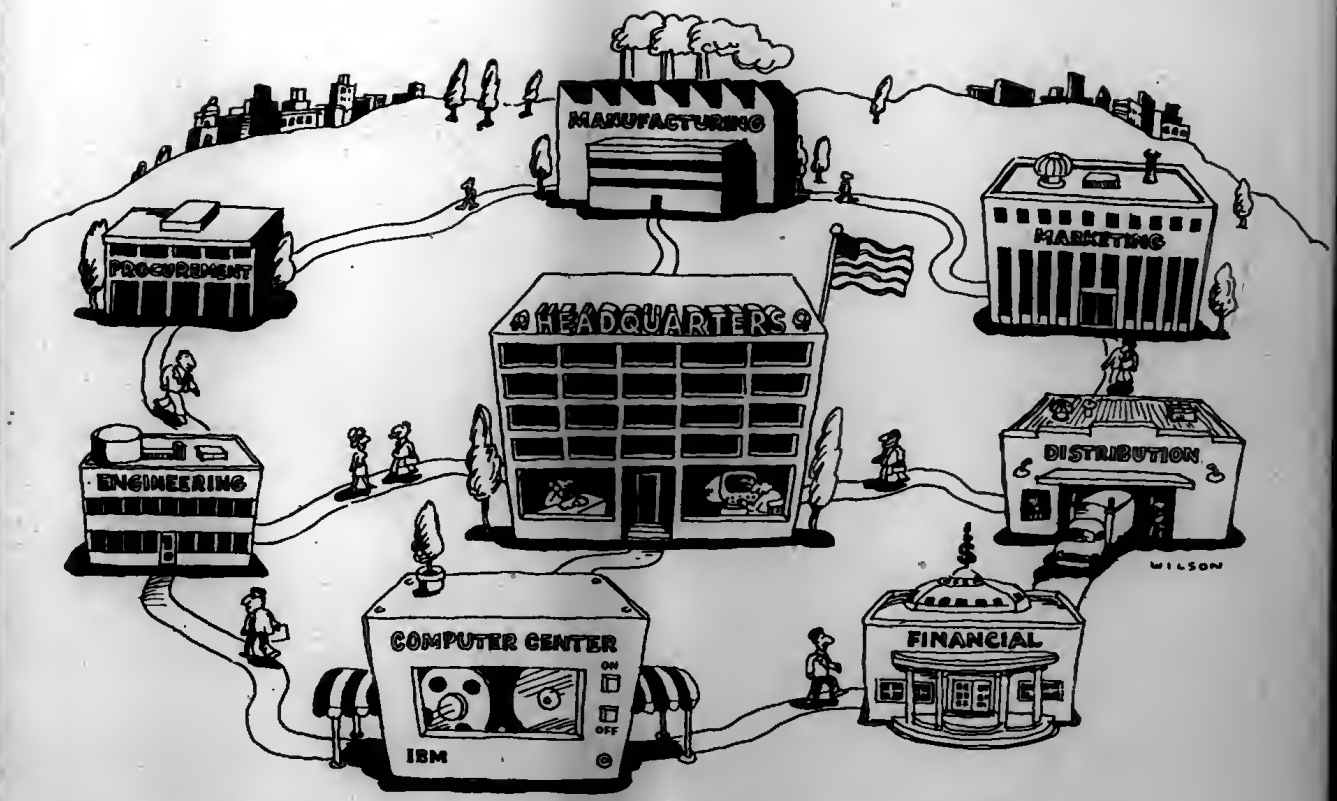
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IN DEPTH

Howard Kaminsky
President, Warner Books
Warner Publishing, Inc.
666 Fifth Ave.
New York, N.Y. 10103
(212-484-2900)

"Computer books and magazines are the fastest growing category virtually in publishing history," says Mark Greenberg, Warner vice-president. "We're interested in explaining software to people, turning complex manuals into layman's language."

Warner will not specialize beyond specifying a book must be micro-oriented.

"We're looking for anything at all levels written in an interesting, informative, entertaining way ... with graphics. We want to target the world."

The new line of books, to be published at least two per month, will bear the imprint of both Warner Software and Warner Books. Greenberg expects sales to range from 25,000 to 50,000 up to 200,000 copies.

As for software, Warner aims to create, produce and market packages in electronic education, information and entertainment for computer-equipped home, school and education. Proposals for software packages can be submitted to Albert Litewka, president of Warner Software, Inc.

Arthur Friedman
Editor-in-Chief
Computer Science Press
11 Taft Court
Rockville, Md. 20850
(301-251-9050)

"We're interested in growing," President Barbara Friedman says emphatically. "We're looking for any quality work, and we're expanding to managerial books."

Known primarily as a college-level text and professional book publisher, Computer Science Press recently leaned toward the "computer literacy for everyone" market.

"I'm interested in books on any of the new languages," Friedman says, "or even the older ones such as Unix and Ada. I'd very much like to see a book on Forth and some of the higher level languages such as List."

Of 20 new books this year, *Fundamentals of Programming Languages* by Ellis Horowitz particularly aims for the DP audience.

Nancy Morrice, Editor
Dilithium Press
8285 S.W. Nimbus
Beaverton, Ore. 97005
(800-547-1842)

Dilithium Press aims for first-time computer users. "After they learn about computers from us, they can move on to our competitors," says Marketing Manager Cathy Filgas.

Chairman of the Board Merl Miller launched Dilithium in 1977 after building his first home computer from a kit. He expects sales to continue doubling each year and foresees software equaling book revenue in four years.

Computers for Everybody (by Jerry Willis and Merl Miller) sold at a 10,000-book-per-month clip from October 1982 through May. Dilithium lists 60 new titles and software packages for 1983.

Codata
Announces a
Major Improv
in OEM Micro



COMPUTER BOOKS

IN DEPTH

Miller seeks writers like himself — nontechnical people who have learned how to do something with computers which they can share with other nontechnical consumers.

Jeremy Robinson
Senior Editor
Software & Computer Science
Professional & Reference Books
McGraw-Hill Book Co.
1221 Ave. of the Americas
New York, N.Y. 10020
(212-997-3661)

The world's largest publisher of books and educational materials recognizes computer titles as its fastest growing line. A glossy catalog lists more than 400 books in print on advanced computing, software, programming languages and documentation. Last year, the company marketed 26 software packages; this year the number is 36.

Computers Today **heads the trade list. This D.H. Sanders basic book sold 100,000 copies by May and should reach 150,000 to 200,000 by December.**

In April, the publisher released *The McGraw-Hill Computer Handbook*. This encyclopedia-like hardback packs about as much as is physically possible between two covers. The 1,200 pages cover micros to mainframes, Basic to PL/I, number systems to artificial intelligence. At $79.50, this computer handbook serves as a sophisticated reference work for the DP manager.

McGraw-Hill is parent to Byte Books and Osborne, two respected names in computer publishing. Osborne/McGraw-Hill introduced in June the Disk-Guide series of five compact reference guides containing essential information for Apple II, Atari 400/800, IBM Personal Computer, Visicalc or CP/M users. The guides were designed as an alternative to lengthy manuals.

Upcoming titles from Osborne include *The Osborne/McGraw-Hill Home Computer Software Guide*, to be available in September, and *Microsoft Basic Made Easy*.

Last month, McGraw-Hill paid cash for Aardvark Software, Inc., a developer and marketer of micro-based software for use in tax planning.

Ann Dilworth, Publisher
General Books Division
Addison-Wesley Publishing Co.
Reading, Mass. 01867
(617-944-3700)

The Fifth Generation **by Edward Feigenbaum and Pamela McCorduck typifies the DP book with general trade potential. Addison-Wesley aims the book at those of the American public who will share the authors' concern that Japan is racing ahead to a far mightier generation of computers.**

Addison-Wesley has been a steady supplier of DP books, ranging from Peter Keen and Scott Morton's *Decision Support Systems: An Organizational Perspective* (1978) to Greg Kearsley's *Computer-Based Training, A Guide to Selection & Implementation* (1983). Kearsley's book covers system selection, materials development, implementation and management of computer-based training.

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computers.

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While computers become functionally simpler every day, they still require technical support. We'll provide it. We'll supply all the evaluation information you need before the sale, and the technical support you require afterwards. And we'll make ourselves as accessible after the sale as before. Any question about a Codata microcomputer can be answered via our TOLL FREE telephone line during normal business hours in every U.S. time zone.

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The expandable MULTIBUS architecture of the Codata 3300 provides for a variety of expansion options, such as: eight additional users, additional 33 megabyte Winchester disk drives; removable cartridge tape unit, a nine-track magnetic tape unit, and additional 512 K byte memory boards for up to 1.5 megabytes of RAM. An expanded Codata 3300, with 84 megabytes of disk storage, is priced at $13,500. The 3300 is also available as a 12 megabyte system for as low as $7,800.

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~~R~~evolutionary systems development

The solution to a problem will change as the business environment changes. Few MIS efforts look in practice as they were originally conceived. The most important aspect of evolutionary development is understanding what the next project horizon is.

by robert o. peterson

The systems development process for the medium-size management information systems organization has not changed significantly in the past 10 years. A variety of tools, productivity aids, philosophical statements and software products have appeared over those years, but the basic process and anticipated results have not dramatically improved.

Analysts in the field still define long, "finished-product" projects. Invariably those projects fall into the multiple-man-year category, end up late or underestimated, are implemented in an atmosphere of trauma and go through multiple iterations of specification changes because of user or MIS personnel misunderstandings.

The response to these problems has been to upscale the emphasis on the front end of projects in an effort to nail down the definition of the deliverable. While the success/failure ratio has improved somewhat, the net result has not merited the expenditures. It is time MIS personnel started recognizing some facts of the business environment and altered the development process to match that environment.

The first step is to define development projects in an evolutionary, not revolutionary, framework. Evolutionary efforts provide a basic set of tools to users whereby a portion (preferably a major portion) of their problem is solved. This set of tools should be provided as quickly as possible. Working with these tools will let the user accomplish two things. First, the small set of tools can be tuned to enhance their usefulness without a great deal of work on anyone's part. Second, the next step of the development process can be defined to provide the enhancements to accomplish more of the user's goals.

This type of iterative development effort seems to go against the analyst's compulsion to plan in fine detail and estimate to the man-hour every effort. The more finely detailed the plan, however, the more significant the variation; the tighter the estimate, the more likely it is to be wrong.

If MIS analysts define the product to a tee with the appropriate members of the user community, especially management; and garner solid management commitment, they assume they can expect a decent probability of

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success. However, it is highly unlikely that those people will hold the same positions with the same reporting lines and same political power one year after the project goals are conceived. If dramatic changes in user department personnel occur during system construction, implementation will be difficult. If the changes take place within six months after implementation, the problems will not be quite so obvious but just as severe. The analyst's hero badge can tarnish quite quickly.

Keep in mind, the success of a project is not guaranteed at the implementation point but only after the system becomes a way of life — at least six months after implementation.

The larger the project, the higher the risk of failure associated with turnover and other types of change. The greater the breadth of user involvement in the project, the higher the probability of failure. Try to project this as a significant problem to management when the effort is being conceived and see how much sympathy you receive.

Shifting Needs, Priorities

The likelihood of correctly defining the total project all the way through to an operational stage is extremely low. No matter how much time the analysts spend early in the process, the results always seem to be the same. Not surprisingly, someone, somewhere is not satisfied.

Business priorities and needs will shift like eddies of a stream regardless of how much planning goes on. If MIS tries to tie down system specs tightly, all it accomplishes is an arbitration mode of dealing with the targeted users. That's automatically a loss, since each concession achieved from the user will result in either complaints or a never-ending series of enhancement requests after implementation. MIS seldom builds these considerations into the development cost of the original project nor does it analyze the benefits. It's a fact of life that the users will eventually get the systems they want, one way or another. By the time all these changes are in place, the system certainly will not be the same as the analyst originally intended.

The more tightly analysts define the system, the less likely it will match the users' needs after implementation. The more concessions analysts achieve from the users, the more changes they will request after implementation. The more changes MIS implements either before or after the project reaches a productive state, the more quickly the system becomes obsolete.

Nonreactive Resources

Typically, long, intensive projects involve a heavy commitment from the development staff both in the raw allocation of resources and the emotional association of staff members to the project goals. The longer and more technically complex these projects are, the higher the commitment in both areas.

But management does not take this same commitment view. It regards any MIS effort as an allocation of high-cost resources (in this case human) to a specific goal. The main purpose in committing to that effort is an anticipated return on investment. When management identifies higher payback efforts, it funnels resources toward those areas.

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be reallocated during the project.

A basic conflict arises at this point. The MIS department can either take personnel committed to a large project and have them work on another crash project or merely state that resources are not available to meet an opportunity. MIS may be right in deferring the challenge, but will have failed the organization, and eventually its relative worth to the company will be lowered. Net: It has failed. Should MIS choose to reallocate and inevitably cause the project to be late, the project will have to be implemented in a different environment than anticipated because of the time and frustration factor. Net: the analysis effort failed.

Root of the Problem

Essentially, system developers try to solve the problems of the user community on far too grand a scale. Very few systems solve the problems of the user; they represent attempts to solve the root cause of *all* user problems.

First of all, the developers cannot possibly solve all problems, but merely provide the tools to a talented user department to solve their own problems. As common wisdom would have it, about 50% of the product MIS attempts to install will fill 80% of the user's need. And that 80% will be delivered sooner and provide the platform for achieving the extra 20% with significantly less than 50% more effort. Why? Simply because the solution to that problem will change, since the environment has changed.

The tuning the user will demand will be measurably different with a system in hand than after an interview series with the MIS analysts. Let the users direct that tuning.

Project Horizons

An evolutionary development process that includes the following elements can help keep detail planning in perspective.

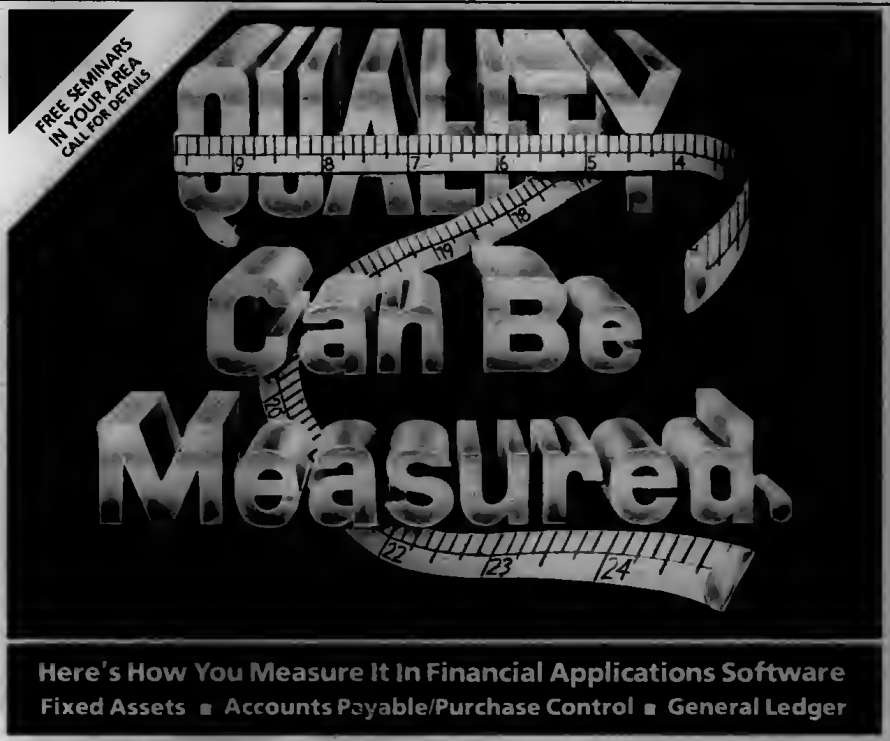
There are basically two levels of project definition based upon the level of detail in planning. The first is a broad-stroke definition that provides a projected scope for the effort if it is completed. The second is a detailed plan including specs, structure charts or scribbles on the backs of envelopes (whichever you choose to define your projects) that provides the necessary levels of detail and assurance for the first and possibly second phases of the effort. This plan, of course, falls within the horizon document and is consistent with its direction.

The definition of a project horizon (in fact, a set of horizons) gives management the ability to alter priorities. It basically provides a direction for a long-range effort that is consistent with corporate long-term planning. (If we admit the truth, the typical long-range planning of most corporations is lip service at worst and tenuous at best. The erratic nature of the business environment guarantees this situation, and the constant shifting of the management infrastructure fosters it.) With horizon goals of relatively short periods, say 12 weeks at maximum, a project can be stopped or deferred, yet still provide an adequate return.

'System developers try to solve the problems of the user community on far too grand a scale. Very few systems solve the problems of the user; they represent attempts to solve the root cause of all user problems.'

Any project involving significant effort requires a proportionate amount of planning, coordinating and estimating. For the initial portion of the overall effort (the first 12 weeks) enough detail planning is required to assure proper delivery of the stage product. Once the long-term horizon is defined, this initial planning should be relatively easy.

The main trap to avoid is the



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desire to plan the next phase and following phases out of a fear that subsequent phases will not fit. Certainly that inclination is understandable both from the view of efficient resource allocation and self-preservation, but keep two things in mind. The more you plan subsequent phases, the more you limit your options later. Second, there is no guarantee that subsequent phases will be developed at all or in the same way as originally conceived. If your horizons are appropriately consistent, the stages will in fact flow well. You may need to alter the initial phase somewhat, but you probably will no matter how well you plan.

There is one overriding requirement: At the end of each detail phase, the project can be stopped or deferred with an operational product intact. If this requirement cannot be met, MIS has in fact delivered absolutely nothing. You have probably done more harm than good.

When defining the detail stages of a project, keep to the above-mentioned requirement by telling yourself that once you implement this stage, you may never get back to the project (at least before the auditors see it). Therefore, spend some time during horizon definition breaking the effort into discrete, independent stages. Choose the sequence (proposed sequence) with some care. The stages need not be sequential in relationship to the process. Temporary interfaces can be built to alleviate the immediate need for a step.

Among the best options for unit scheduling, the first and most obvious is in decreasing order by return on investment. The area of maximum gain is developed first, followed by the next highest return and so on. At times the order cannot be quite that pure, but as a general direction it is achievable. If that 80% return is reached after half the project segments are complete, the project can be stopped in the interest of pursuing a higher payback effort.

If projects are stopped or interrupted, the operational product will appear somewhat patchworked, but then, so what? If it does the job economically, the project has succeeded. And other projects will have been completed with a higher return than what you would have worked on.

Will discontinuing the project inherently exacerbate your maintenance problems? Probably not. Maintenance problems most often occur in conjunction with poor design practices and ineffective systems interfaces. As long as the stages you define are planned and implemented intelligently, maintenance should not be any more troublesome than before. If anything, it should be simpler, since you will be in a better position to throw away bad parts of the system easily.

Preventing Drift

The second option is to bracket the system by implementing the first and final systems steps as the first two detail efforts. This approach has the advantage of defining the boundaries of the entire project. It prevents drift. An accounts payable system should not develop as an outgrowth of a general ledger system merely because the project has been allowed to drift.

When working on a system that involves by-and-large sequential activities, bracketing the effort is fairly simple. Other processes are more subtle and will require more planning and identification. However, most business activities are inherently sequential; a stimulus promotes some type of activity which triggers another activity. Draw the sequential activity out of the mass of interrelated steps and your job will be substantially simpler.

At times, it will be difficult to keep the project within preset bounds even if it is well bracketed. A good deal of the project leader's time will be spent monitoring and directing the effort away from drift.

The stages beyond step one are being planned while stage one is being developed. Use this time to build and market the project boundaries. The user will be far more receptive to limits being placed upon his plans after he actually sees some gains.

Time as Stage Definition

Nothing will force the definition of discrete stages more effectively



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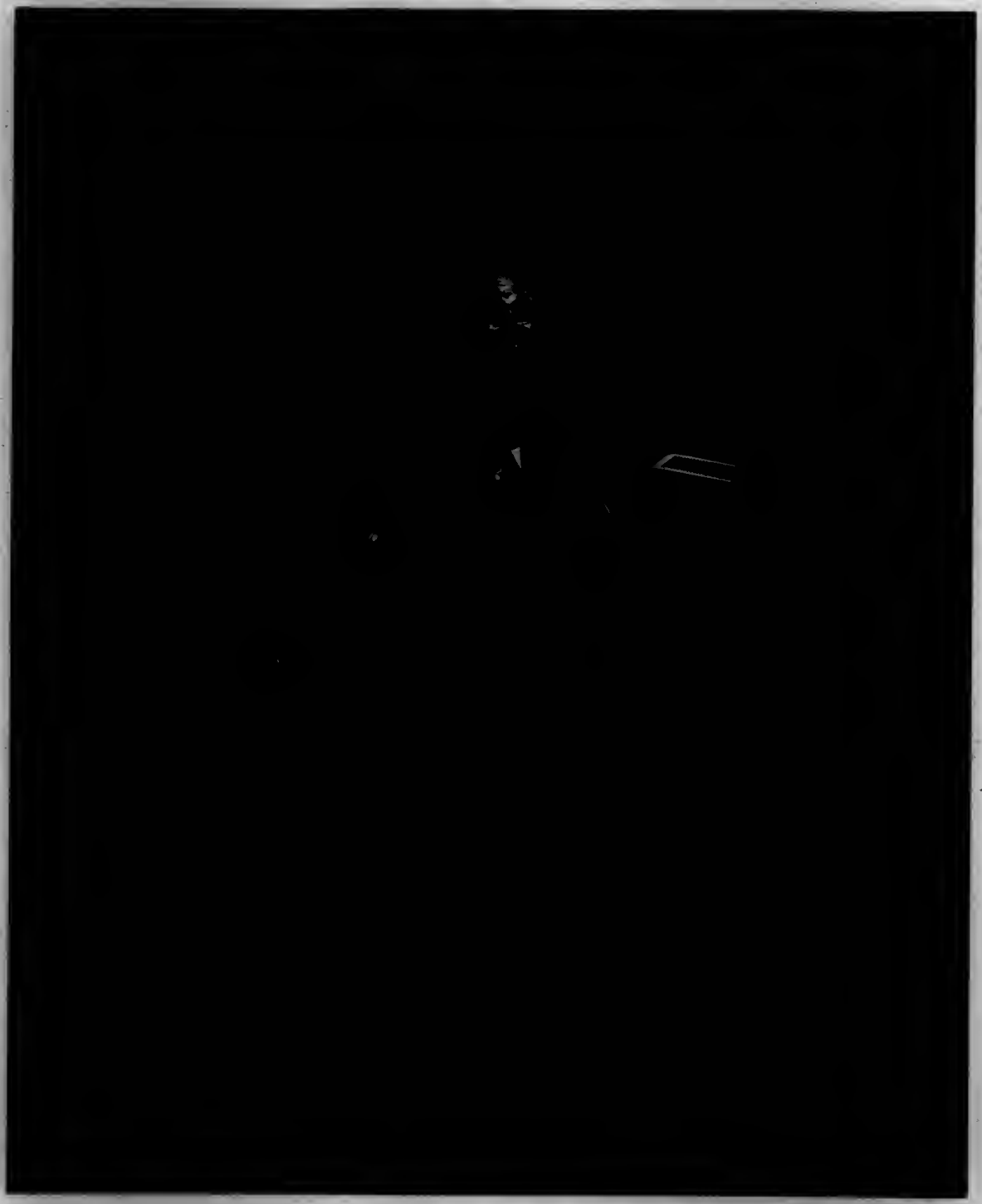
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than time. Rather than ask a project leader to define how long it will take to develop a system, ask him what can be done in two to three months. Quite simply, that will be the first stage. What the first stage will accomplish becomes simply a matter of negotiation between the user and MIS.

Some staffing concessions may be required. Most often the initial stages of a large project are the most difficult to define in a time frame this short. Naturally these are the stages in which the optimum gain is achieved overall, since this is the first opportunity the user will have to gain practical experience with the system.

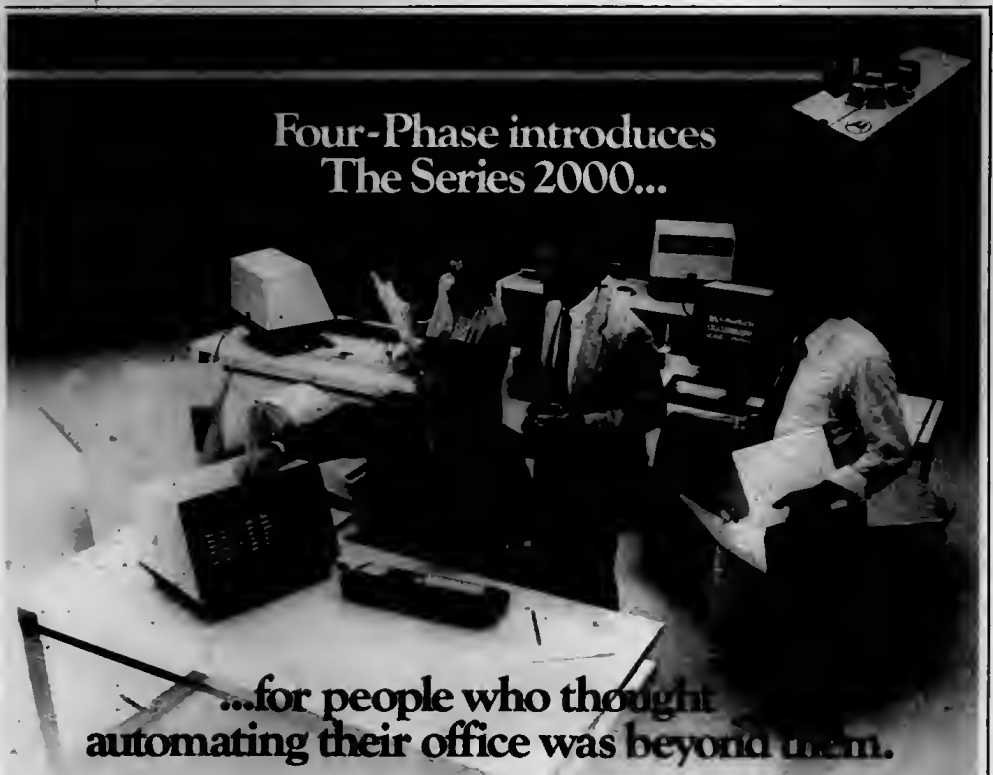
It is possible at this point that you will want to augment your permanent staff with some outside help. Bring in contract or consulting help for the initial stages and assign them the more mundane portions of the effort (the places you can be hurt the least). Subsequent stages are more easily broken down into short portions simply because they represent modifications to operational systems.

That is a key ingredient: the subsequent stages are modifications. From the first stage on, you will be changing an operational system and will have a stated baseline from which to operate. That baseline will be a relatively small kernel to deal with, allowing extensive changes to be made quite easily in the event a basic mistake was made.

After several stages have been implemented, a develop/enhance cycle can begin. With this mechanism, one of the two-month stages is dedicated to enhancing the product already in operation. In this fashion, operational projects can be made more user-friendly, originally designed reports or on-line activities can be replaced, auditability can be improved and user dissatisfaction can be prevented.

As with any of the previous stages, spend no more than two to three months with any stage. The gains from this approach stretch into a variety of areas where we have had problems in the past:

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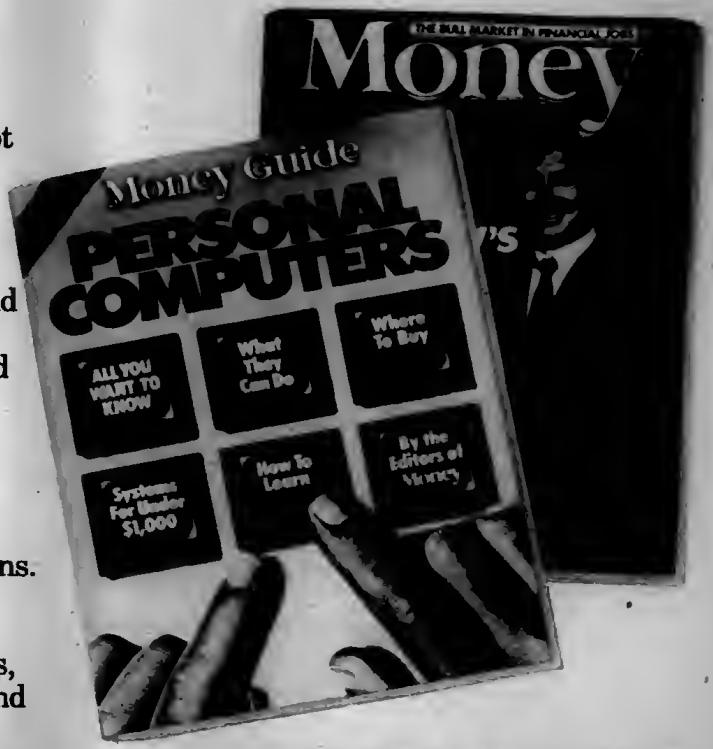
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throughout each stage since, legitimately, people can at least be dedicated to an effort that long.

- Turnover's impact can be reduced.
- A bad product cannot possibly be too overwhelming.

Implementation and follow-up of a large project are seldom handled well. With smaller implementations, fewer people need be involved and the senior-level expertise will be spread less thin. Users are more likely to be able to contribute to implementation success since the breadth of their suggestions is less likely to overlap into areas outside their responsibility. In addition, the company as a whole will be less traumatized and, therefore, more lenient in judging the problems that will inevitably occur.

The difficulty, of course, comes in introducing an unstable element into a basically stable environment. You will now be introducing a change whose impact can spread if not adequately tested. Testing and assurance criteria must be strong and effective. In any case, this type of problem is not significantly exacerbated by introducing many small changes over one complex change. Without thorough testing, any product is liable to fail.

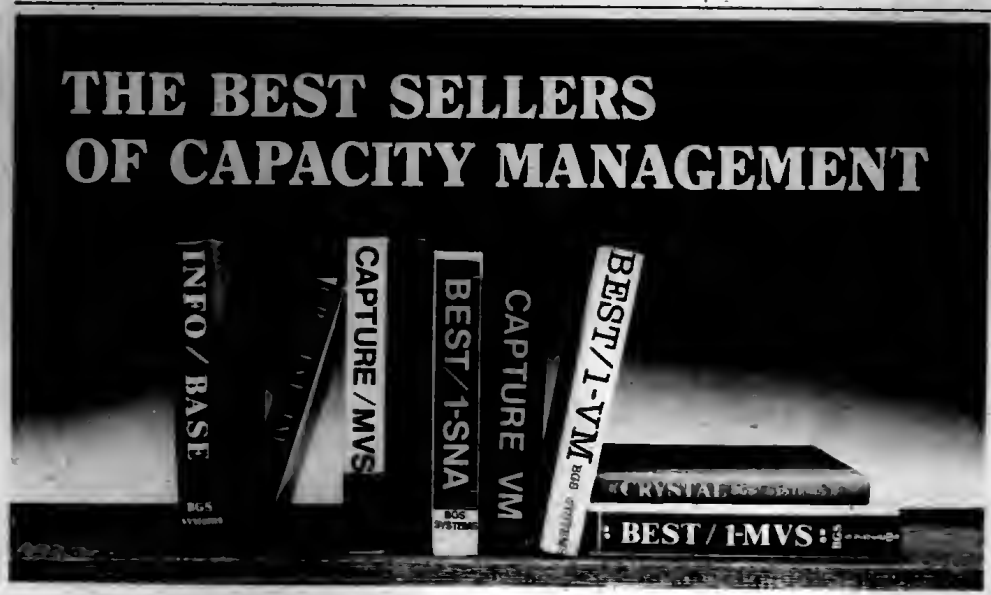
The most important aspect of evolutionary development is understanding what the next horizon means, as well as how far away the final horizon is. The key is to understand just how much planning to do, and in how much detail that planning is truly effective. Few MIS efforts look in practice as they were originally conceived. And users want workable systems, not comprehensive plans.

Use judgment and cost/benefit as the criteria in establishing the detail associated with setting horizons. Don't overdo it or underdo it. And by all means, when the bulk of the gain has been squeezed from a project, call it complete and get on to more important issues.

About the Author

Robert Peterson is a senior consultant with Systems Management Associates in Cary, N.C. He has been involved in computer systems development for 17 years, working with firms in a variety of business areas. He is also writing a book about systems development.

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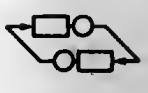
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Honeywell Enhances VIP7300, 7800 Series Of Editing Terminals

WALTHAM, Mass. — Honeywell, Inc. has announced additions to its VIP7300 and VIP7800 series of editing terminals, as well as a new 400 char./sec dot matrix printer.

The additions to the VIP7300 include the VIP7305, VIP7315 and VIP7325 terminals. New to the VIP7800 series are the VIP7813 and VIP7823. The new models reportedly feature a multifunction keyboard with application-specific overlays. The terminals are said to incorporate high-density integrated circuit logic and keyboard membrane technology, a Honeywell spokesman said.

Additional features of the terminals include a separable multifunction keyboard with 3-foot cable and visual and form validation attributes assignable in any combination to any screen location.

The VIP7813 and VIP7823 feature character, line and block transmission; forms mode editing capabilities; 72-line vertical scrolling; and a buffered printer adapter. The VIP7305, VIP7315 and VIP7325 feature character mode transmission and right/left scrolling capabilities, as well as a number of office automation system facilities, the spokesman noted.

The new models of Honeywell's dot matrix printer include the PRU7270, PRU7271 and PRU7272, which print 132 char./line at 400 char./sec on paper up to 15-in. wide. The printers reportedly communicate asynchronously with a Honeywell host processor through RS-422A direct, RS-232C remote and RS-232C direct interfaces. They receive data at transmission rates of 1,200, 1,800, 2,400 or 9,600 bit/sec., the spokesman pointed out.

Available in August, the VIP7813 and VIP7823 terminals are priced at $2,350. The VIP7305, VIP7315 and VIP7325 will be available in October and cost $1,900. The printers are available in August and will sell for $3,450, a spokesman said.

Additional information can be obtained from Honeywell at U.S. Marketing and Services Group, 200 Smith St., Waltham, Mass. 02154.

Hotel Rings Up Profits With Call Detail Recording

LANCASTER, Calif. — For the first time in nearly four decades of operation, the Desert Inn hotel located here reported that its telecommunications system is an important part of the establishment's profit picture, according to hotel owner Gary Fischer.

After installing a call-detail recording (CDR) unit and call-pricing system to his telecommunications system, Fischer reported a 38% profit on monthly long-distance telephone costs, expenses that were once absorbed by the hotel.

In an effort to enhance guest telephone services and control operating costs, the hotel's management decided to replace the existing 11-year-old telephone system with an American Telecom, Inc. Focus 1 digital private branch exchange (PBX). The system, with a capacity for 250 trunks, was installed in March of 1982.

The Focus system performed to expectations by improving the hotel's telecommunications capabilities, but hotel management at the Desert Inn still faced a loss of control over costs associated with the near 3,000 local- and long-distance calls placed by guests each month.

The selection of a CDR and call-pricing system for the Desert Inn began when Fischer targeted specific objectives that he expected from the equipment. In the area of customer service, he required a unit that would be transparent to the guest. Fischer also felt that the less telephone operator interaction the better. "As a hotel owner, I have no control over the way the telephone operator treats my guests," he said.

Fischer selected the Focus Call-Collector software feature because it provided the option of establishing his own pricing structure for recovering telephone costs, he said. The software feature is programmed to apply base prices for each type of outgoing call, including local, intrastate and interstate toll and international numbers in the North American dialing

(Continued on Page 60)

Versatec Processor Designed for SNA

SANTA CLARA, Calif. — Versatec, a Xerox Corp. company, has introduced the Graphics Network Processor Model 451, a communications processor for use with IBM's Systems Network Architecture environments.

The Model 451 operates as an IBM 3770 series RJE workstation. It can send and receive Ebcdic or binary synchronous communication data using IBM's Synchronous Data Link Control (SDLC) protocol. Printer/plotter I/O uses a Versatec byte-parallel format for operation at high data transfer rates. Data integrity is ensured through 16-bit error detection and recovery. In addition, the unit performs any required translations of host computer data, the vendor said.

Under the SDLC protocol, the unit communicates with a host via synchronous modems or direct connection to an IBM 3705 or 3706 communications controller. The Model 451 and attached devices emulate IBM 3776 Models 3 or 4 or an IBM 3777 Model 3 RJE workstation. The unit costs $8,500, Versatec said from 2710 Walsh Ave., Santa Clara, Calif. 95051.

Converter Supports IBM's BSC

TORRANCE, Calif. — Local Data, Inc. has announced a protocol converter that reportedly provides both Ascii and Ebcdic operation with IBM protocol Binary Synchronous Communication.

The Datalynx/3274 enables Ascii or Ebcdic code selection during menu setup of the converter's synchronous ports, according to the vendor. The converter can reportedly support one host synchronous port as Ebcdic and another as Ascii, or both host ports may be Ascii or Ebcdic.

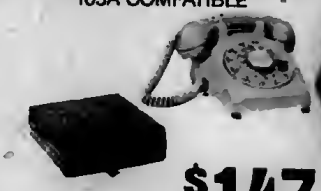
The Datalynx/3274 supports three, five or nine Ascii CRTs, printers or personal commuters in emulation of the IBM 3248 and 3287.

The price for three-channel support is $3,250; five-channel support costs $4,000; and nine channels are $6,000.

More information is available from Local Data, Suite 706, 2701 Toledo St., Torrance, Calif. 90503.

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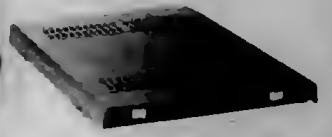
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For Level 6, DPS 6

ICS Tools Unveiled for Honeywell

PHOENIX — Independent Computer Systems, Inc. (ICS) has added two communications software products for the Honeywell, Inc. Level 6 and DPS 6 designed to enhance the DPS 6-to-DPS 6 communications to its ICS Toolbox.

The ICS Multiple System Link (ICSMSL) reportedly provides the capability to access data at the record level between DPS 6 machines transparent to the user. File access is transpareot to the software. Because files no longer are required to be carried at the local DPS 6, disk requirements are restricted to that which is necessary for software. Using this ability, CPU-bound tasks can be put onto the DPS 6/10 microcomputer running the same software as the DPS 6, the vendor said.

Also introduced was the ICS Intelligent File Transfer (Icsift), which reportedly provides the capability to transfer files between the Level 6 and the DPS 6 over asynchrooous or synchronous communications lines. The communications lines may be leased or dial-up.

Icsift is a set of two programs that permit any Honeywell MOD400 file to be transferred via communications lines to another Level 6 or DPS 6. One program, ICS Command File Transfer, may be run as either the controller or the remote. ICS Remote File Transfer may be run as the remote only.

ICSMSL and Icsift are available as part of the ICS Toolbox, which is a set of 150 utilities designed to extend the capabilities of MOD400. A single-site license for the Toolbox is $8,500. Honeywell MOD400 is required, ICS said from Suite 106, 8686 N. Central Ave., Phoenix, Ariz. 85020.

Terminal Fits HP

COSTA MESA, Calif. — Semicoa Data Systems has introduced a Hewlett-Packard Co.-compatible terminal that features a 12-in. amber screen with a 9- by 12-char. matrix, a detachable keyboard, fingertip tilt and swivel positioning.

The Semicoa 2600 terminal also includes full screen editing, block-mode communications, auxiliary. port, function keys, a menu-style setup using nonvolatile memory and an automatic shutoff after 15 minutes of inactivity, the vendor said.

The terminal is priced at $1,495 from Semicoa Data Systems at 333 McCormick Ave., Costa Mesa, Calif. 92626.

ID Systems Unwraps Family of Terminals

HILLIARD, Ohio — ID Systems Corp. has introduced a family of high-resolution graphics terminals that reportedly feature dual display architecture, National Television Standards Committee compatibility, zoom and pan.

The ID-200 series of terminals includes 1280- by 480-pixel resolution and a display writing rate of up to 1.25M pixel/sec, according to a vendor spokesman.

The series includes a dual video generator that permits the images to be split and displayed on separate monitors. Each monitor can be independently manipulated.

The ID-200 also includes 128 downloadable fonts, as well as instantaneous hardware pan and 16 levels of zoom. Up to eight windows can be displayed simultaneously. The terminal also has graphics command compatibility with most Tektronix, Inc. terminals, according to a vendor spokesman.

Priced at $4,000, the ID-200 terminal is available from ID Systems, located at 4089 Leap Road, Hilliard, Ohio.

Display Station Boasts IBM Compatibility

RALEIGH, N.C. — CTI Data Corp. has introduced a display station that is reportedly compatible with the IBM 2740 and 3767 keyboard printers.

An enhanced version of CTI's Model 1000, the Model 1000A reportedly allows users to add a display to existing networks. Enhancements include a more compact size, a movable keyboard and a green-phosphor display. It also supports two printers, either as slave units or directly addressable by the host processor, according to a vendor spokesman.

The microprocessor-based unit displays up to 24 lines of 80 characters each on a 12-in. diagonal screen. A 25th line displays operator status and diagnostic information.

Additional features include local editing, selective printing and variable line transmission speed.

The Model 1000A is priced at $2,350 from CTI at 5275 North Blvd., Raleigh, N.C. 27604.

Tools Out For 7700 Unit

DALLAS — Carterfone Communications Corp. has announced software enhancements for use on its 7700 multiport communications terminal.

The enhancements are designed to allow 7700 users to do spreadsheet computing and word processing, in addition to its current capabilities for preparation, transmission and reception of messages, the vendor said.

The rental price for the 7700 multiport communications terminal starts at $180 per month from Carterfone Communications at Suite 1400, 1111 W. Mockingbird Lane, Dallas, Texas 75247.



It's a small wonder! If 19.2 kbps for a mile seems impressive for so compact a unit, consider the price. At $165.00 for quantity one, Data Control Systems SR 120 Async Line Driver has the range and rate for your in-house communications needs. Volume discounts are also available. The modem also conforms to Bell Publications 43401 and 41028. To combine value, price and performance, remember "The Small Wonder", DCS SR 120.

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High-Speed Peripherals Get Aid

BROOKLYN PARK, Minn. — Network Systems Corp. has announced software designed to support channel-driven, high-speed peripherals up to 10,000 feet locally and up to hundreds of miles remotely.

H015 was designed for use with the IBM MVS/SP and MVS/XA operating systems and reportedly permits remote peripherals to operate as if natively attached to the data channel of the associated computer.

The product is said to provide I/O support to all 3270 series controllers and attached terminals and printers, including 3277s, 3278s and 3279s in both Systems Network Architecture (SNA) and non-SNA environments.

A permanent licerise costs $14,400 for the first copy, plus $425/mo for maintenance of all copies. On lease, the software costs $400/mo, including support for the first copy. Network Systems is located at 7600 Boone Ave. N., Brooklyn Park, Minn. 55428.



AJ Modem Compatible With Bell

SAN JOSE, Calif. — Anderson Jacobson, Inc. has introduced a 300 to 1,200 bit/sec modem that is reportedly compatible with Bell Laboratories' 103/212A dial-up telephone network communications modems.

The new modem comes in three configurations: the AJ 1211, which is a stand-alone, full-duplex, autoanswer modem designed for local or remote users; the AJ 1211-AD, which features autodialing from an associated terminal keyboard without the need for a telephone set on the data line; and the AJ 1211-RM modem, available as a modem card for mounting in racks.

The AJ. 1211 is priced at $625, the autodial AJ 1211-AD at $675 and the modem card at $645. More information is available from Anderson Jacobson at 521 Charcot Ave., San Jose, Calif. 95131.

Processor, Modem Out For LVM

TROY, Mich. — The Votrax Division of Federal Screw Works Corp. has unveiled a Dual-Tone Multifrequency (DTMF) Modem and an Application Processor for use with its LVM Business Communicator.

The Bell 407-compatible DTMF modem is said to provide the interface between the LVM and incoming telephone lines, automatically answering and terminating calls.

The Application Processor is an integrated 16-bit microcomputer designed for such applications as payroll, time data entry, credit verification and banking services. The system functions alone or as a front-end communications processor with the LVM, according to the vendor.

The DTMF Modem costs $700 per telephone line; the Application Processor costs $26,000; and the LVM typically costs $15,000, a spokesman said from 500 Stephenson Highway, Troy, Mich. 48084.

Syfa Intelligent Concentrators Out for IBM Mainframe Users

IRVINE, Calif. — Computer Automation, Inc. has introduced a range of devices based on its Syfa Network Processor, which enable IBM mainframe users to include 40- or 80-col. videotex sets in their System Network Architecture (SNA) networks without having to make changes to the host system or applications software.

Called Syfa Intelligent Concentrators, the devices offer IBM users full-color data display, graphics and local processing and print capabilities. Up to 15 videotex sets, operating as IBM 3270 terminals, can be simultaneously attached to an IBM mainframe under SNA/Synchronous Data Link Control via a cluster controller or a basic Syfa system.

The intelligent concentrators are based on low-end Syfa processors with an 8M-byte Winchester disk drive and eight videotex ports (expandable to 16 ports). Expansion modules also enable users to access local or remote printers and interface with serial data capture devices, such as handwriting recognition pads. In addition, expanded versions of a basic intelligent concentrator can be programmed in the standard Syfa business-oriented language Sybol, the vendor said.

A typical intelligent concentrator system, including a cluster controller and Syfatel 3270 protocol emulation package costs about $1,700/port, Computer Automation said from 2181 Dupont Drive, Irvine, Calif. 92713.

V102-I Board Enhanced, Fits IBM

LOS GATOS, Calif. — Vynet Corp. has announced that its single-board V102-I dual-channel interactive telephone interface for the IBM Personal Computer is now available with two independent telephone voice channels and a modem option that can be switched between channels to make either serve as a data communications link.

The new configuration replaces the original Vynet dual-channel IBM Personal Computer interface, which required dedication of two voice channels or of one voice channel and one data channel, according to Vynet.

The V102-I board is designed to plug into any peripheral slot of the computer, the vendor said, and connects directly to the switched telephone network through a Federal Communications Commission-certified line interface.

A basic configuration consisting of a V102-I board equipped with two V200-VSM modules and a 300-word vocabulary is priced at $793.

Additional information is available from Vynet at 160B Albright Way, Los Gatos, Calif. 95030.

For Business, Engineering Users

Graphics Upgrade Line Introduced

SACRAMENTO, Calif. — Digital Engineering, Inc. has introduced a line of bit-mapped graphics upgrade products.

The 512-Series Retro-Graphics printed-circuit board kits reportedly provide Tektronix, Inc. 4010/4014 graphics terminal emulation and Tek Plot 10 graphics software compatibility on several different terminals.

The 512-Series reportedly provides business, scientific and engineering users with such capabilities as point plotting, multistyle vector drawing, four graphics character sets, selective erase, cross-hair cursor and optional light pen.

The graphics enhancements reportedly utilize the terminals' existing noninterlaced CRT for displaying business charts or design schematics. For hard copy, the 512-Series enhancements provide compatibility with printers made by Digital Equipment Corp., Hewlett-Packard Co., Texas Instruments, Inc. and others.

Priced at $749, the 512-Series is available from Digital Engineering at 630 Bercut Drive, Sacramento, Calif. 95814

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Said to Cut Subscriber Costs

ITT Announces Worldwide Leasing

NEW YORK — ITT World Communications, Inc. has announced an international digital lease service said to permit subscriber savings on international communications through circuit-sharing portions of a dedicated line.

To support the service, ITT Worldcom has established a 56K bit/sec international satellite channel, with channel circuits divided among subscribers who choose the circuit speed most applicable to their digital transmission requirements.

Applications for the service include international data transfers, facsimile, order entry, data base access, computer-to-computer communications and customer-multiplexed digital voice.

Price of the service depends on the size of the circuitry required, according to a vendor spokesman. It ranges from $1,964/mo for 1,200 bit/sec to $3,300/mo for 9,600 bit/sec. More information is available from ITT World Communications, 2 Broadway, New York, N.Y. 10004.

Financial Management Series Out

GLEN HEAD, N.Y. — Lundy Electronics & Systems, Inc. has announced a series of Financial Management Systems (FMS) designed to automate the teller and banking operations.

FMS comprises a teleterminal system (Teller Management Center), personal computer/terminal system (Administrative Management Center) and signature capture and verification system (Signature Management Center) linked by Lundy's Interlink software package.

The Teller Management Center is priced at $4,000 to $5,000/workstation. Prices on the other components have not yet been determined, a spokesman said from Lundy Electronics in Glen Head, N.Y. 11545.



Shield Blocks CRT Screen's Radiation

IRVINE, Calif. — Biflyx and Design West have introduced a radiation screening shield designed for CRT screens.

Somashield is said to protect the human body from low-level radiation and ultraviolet light. The transparent shield contains radiation-blocking lead and is said to fit easily over any CRT screen, according to a company spokesman.

The shield will block 99% of X-ray radiation, ultraviolet radiation and excess positive ions and the nonglare surface of the device will enhance picture contrast and reduce eyestrain.

The Somashield can be installed without tools and may be easily moved from one screen to another, the vendor said.

The shields retail from $99.95 to $149.95 each, depending on size, according to a spokesman for the firm. Additional information is available from the Health Science Division, Biflyx and Design West, located at 2532 Dupont Drive, Irvine, Calif. 92715.

Software Units Aid In Hotel's Profit Picture

(Continued from Page 55)

plan.

In operation, each guest's call is recorded and adjusted to reflect the Desert Inn's charge for the call and the charge to the guest.

A printout or room summary report indicates the room number, total number of local- and long-distance calls, date, time, duration of call, number dialed and other important information.

At check-out, front desk personnel may access additional call-charge information that might have accumulated since the last posting. The Focus Call-Collector software can be modified on site, as required, allowing for ongoing programming changes.

Based on the Desert Inn's actual billing information, the software unit has paid for itself in three months following its installation, Fischer said.

The software is expected to recoup investment on the hotel's entire PBX system within five years.

The successful utilization of call-detail recording equipment and a call-accounting system is, in Fischer's opinion, dependent upon the property management's attitude and how the service is marketed.

"A concern in the industry has been: 'How the customer will react to paying for telephone services.' Our experience has been very favorable," Fischer said.

"We are offering a service that is a benefit to them on a professional level — both in performance and in cost," Fischer added. "By using our system as opposed to going through the telephone operator and using a business or personal credit card at the highest rates, we save the guest money."

Multiport Version of Secure Out

SAN FRANCISCO — Leemah, a computer security specialist, has introduced a multiport version of its Secure Access Unit, claiming enhanced programmability and protection from outside intrusion.

The Secure Access Multiport (Sam) uses programmable memory and callback for up to 256 authorized locations to prevent dial-up access from unauthorized locations, the firm said.

The Sam uses a common memory, program and controller for the basic 32-port system packaged in a 19-in. by 8-in. by 12-in. rack-mountable shelf. Each line card contains circuitry to protect two ports, permitting protection of a basic number of ports with expansion in two-port increments as the demand for system dial-up ports increases.

The price for the Sam ranges from $570 to $1,400 per port. More information can be obtained by contacting Jeff Burrus, Leemah, 729 Filbert St., San Francisco, Calif. 94133.

Fibronics Announces FM 1638 Link

HYANNIS, Mass. — Fibronics International, Inc. has announced the FM 1638, a communications link for users of IBM System/34, 36 and 38 processors.

Called the Cable Bandit Series, the device allows IBM users to connect up to 16 ports via a fiber-optic, coaxial or biaxial cable. Each port can handle one to seven peripherals, the vendor said. The device is said to cut cable expenses and allow users to locate peripherals up to 10,000 feet from the processor.

The Fibronics FM 1638 Cable Bandit System consists of a multiplexer which is located next to the CPU. The unit is connected to another multiplexer located near the peripherals. The device costs from $1,600, Fibronics said from 218 West Main St., Hyannis, Mass. 02601.

Artel Systems Handle Graphics Link

WORCESTER, Mass. — Artel Communications Corp. has announced a fiber-optic computer graphics communications system. The Artel T/R2016 and T/R2017 are plug-in transmit/receive modules that transmit ultra-high-resolution, computer-generated video and data up to 100 times further than is possible with coaxial cable, according to the company.

The vendor said that typical applications will include computer-aided design and manufacturing (CAD/CAM), process control, imaging and military C3.

The T/R2016 module can be used alone for monochrome video and data transmission, or in combination with the R/T2017 for two additional color video signals, Artel said, adding that both modules perform automatic self-monitoring, self-testing and alarm on-line without program interruption or extra test equipment.

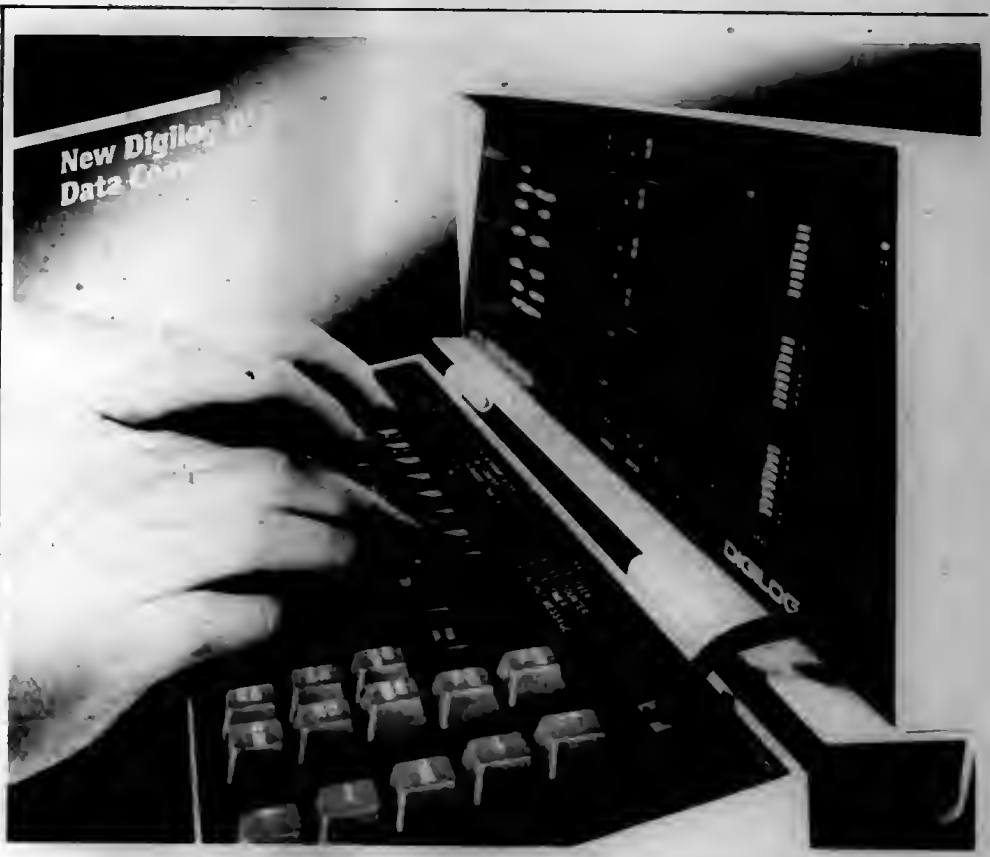
Artel said a typical video configuration using both T/R2016 and T/R2017 costs about $8,000. More information can be obtained from Artel Communications, P.O. Box 100, West Side Station, Worcester, Mass. 01602.

Teleprocessing Monitor Bows for NCR VRX Systems

FORT LAUDERDALE, Fla. — A teleprocessing monitor designed for NCR Corp. VRX systems has been announced by Commercial Data Corp.

The Communications Development Tool (CDT) is a modular, multitask communications driver, according to the vendor, and its features include screen formatting, built-in security, remote printing/spooling and message broadcasting. The company said the CDT handles pollable and nonpollable terminals and supports application programs written in VRX Cobol, NeatVS, Cobol 68 and Neat/3.

The system is sold in modules and ranges in price from $5,790 to $13,510. It is available from Commercial Data, 5100 N.W. 9th Ave., Fort Lauderdale, Fla. 33309.



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To Strengthen Its Position in Low-End Mart

Honeywell Unveils Micro-Based Systems

By Patricia Keefe
CW Staff

WALTHAM, Mass. — In a move to strengthen its position in the small business computer market, Honeywell, Inc. introduced two microprocessor-based computers last week that are said to share the same system, applications and communications software common to all of its small systems.

The Microsystem 6/20, a multiuser micro intended for use as a departmental office system, typically supports up to four users, while the DPS 6/40 micro-based minicomputer system supports between four and 18 users. The latter is geared for heavy transaction processing and data communications use in business environments, a spokesman said.

The two systems expand Honeywell's low-end product line, bridging the gap between the vendor's single-user $5,000 to $10,000 Microsystem 6/10, introduced three months ago, and the larger multiuser DPS 6 systems that begin at around $40,000. The Microsystem 6/20 is said to be customer installable and maintainable and is marketed together with solution-oriented, "load and go" integrated software packages, which include office automation, a data entry system and a general-purpose data processing configuration. It supports a combination of op to five RS-422 ports that can adapt to RS-232 devices; matrix and letter-quality printers; up to 1M byte of main memory; one 40M-byte Winchester-type disk; a 5¼-in., 650K-byte diskette; and provides electronic mail and Teletype emulation capabilities.

Aimed at the IBM Series 1, the DPS 6/40 is said to be 25% to 30% lower in price. The DPS 6/40 supports data processing, word processing and communications software and is said to be compatible with Honeywell's Remote Network Processor/6 or Distributed Systems Architecture and IBM's Systems Network Architecture networks. It can coexist with IBM systems using either Binary Synchronous Communications or Synchronous Data Link Control protocols, the vendor said.

Capabilities shared by the Microsystem 6/20 and the DPS 6/40 include:

- The ability to run applications that were developed to run on the firm's DPS 6 systems, protecting the user's software investment while distributing computing power throughout the organization.
- The ability to operate under the vendor's basic Gcos 6 MOD 400 operating system.
- The ability to operate in Honeywell or IBM free-standing and networking environments to provide access to corporate data bases.

Both micro systems are based upon Honeywell's 16-bit Micro 6 processor, which incorporates large-scale integration technology. The Gcos 6 MOD 400 operating system has an annual primary license fee of $1,375, about half the price of software licensed to run on larger Honeywell DPS 6 systems, the vendor said.



Honeywell, Inc.'s DPS 6/40

The DPS 6/40 offers up to 1M byte of main memory and more than 1G byte of

(Continued on Page 64)

HP Upgrades Series 80 Micros, Adds Software to Series 70, 200

By Jeffry Beeler
CW West Coast Bureau

PALO ALTO, Calif. — Hewlett-Packard Co. has enhanced the low end of its systems line with two upgrades to its Series 80 personal computers and with additional software for its Series 200 desktop micros and Series 70 portable processors.

To its existing Model 85A and 86A personal computers, HP has added expanded main memory and improved disk-transfer capabilities to produce two additional Series 80 members — the 85B and 86B.

The company has also supplemented its Model 75C portable computers with five previously unavailable software products, including:

- An HP-adapted version of Visicorp's Visicalc financial spreadsheet program.
- A text formatter that reportedly speeds and simplifies the production of brief letters and memos by allowing users to merge and justify written material and set margins.
- A data communications facility and acoustic coupler that allow the 75C to exchange information with host processors and gain access to assorted public networks.
- A module that reportedly eases the solotion of complex math problems.
- A software aid for land surveyors.

in addition, HP has made Digital Research, Inc.'s CP/M opersting system available with its Series 200 Model 16 desktop system and has added a terminal emulation package that enables the Series 80 machines to communicate with HP 3000 minicomputers.

In a basic configuration, an 86B supports 128K bytes of user random-access memory (RAM), twice as much as its 86A predecessor and costing 33% less, according to an HP spokesman. A minimum 85B holds 32K bytes of user-available RAM, double the capacity of a comparably configured 85A and selling for about 4% less.

Both 85B and 86B also come with varying quantities of "electronic disk," memory that resembles RAM but acts as mass storage. Electronic disk permits the 86B to transfer data 10 times faster than a floppy disk unit and, thus, speeds applications like word processing and file management, which typically require large amounts of efficient mass storage, HP said.

The same memory feature also allows the 85B to read and print data 150 times faster than a tape unit and 15 times faster than a floppy disk module, the company spokesman added.

Unlike the 85B, which is intended primarily for scientific and engineering uses, the 86B is split roughly evenly between

(Continued on Page 66)

Electrostatic Full-Color Plotter Designed for Graphics Users

SANTA CLARA, Calif. — Versatec, Inc., a Xerox Corp. company, has introduced an electrostatic color plotter.

The unit can electronically produce the full color spectrum with translucent toners in magenta, yellow, cyan and black. Plotting on a standard Versatec 42-in.-wide roll of paper, the unit draws color or monochrome plots of any length. The unit can produce full-color 34-in. by 44-in. drawings in eight minutes. Black-and-white drawings can be produced in less than 90 seconds. Resolution is 40,000 point/sq in., the vendor said.

The electrostatic color plotter was designed for computer graphics users, especially those working in geophysical and computer-aided design applications. The unit uses a standard Versatec interface, and plotting in monochrome does not require changes to hardware or software. Plotting in color does require extensive modifications to existing electrostatic plotting software. Color toners are available through the Versatec supplies, and the plotter uses standard Versatec electrostatic media, the vendor said.

The color plotter costs $98,000, Versatec said from 2710 Walsh Ave., Santa Clara, Calif. 95051.

Digitizer Out for RS-232 Users

ESSEX JUNCTION, Vt. — The Polhemus Navigation Sciences Division of McDonnell Douglas Electronics Co. has announced the 3Space Digitizer, a three-dimensional digitizer for users of the RS-232 protocol.

The unit can be used to digitize engineering scale models in preparation for generation of isometric drawings. Originally designed for military applications, the 3Space Digitizer determines the x, y and z coordinates of a point located on a nonconductive, three-dimensional model. This information is immediately available for transmission to a host computer or graphics terminal for storage, display and interaction, the vendor said.

Digitization is effected by touching the point to be measured with a hand-held stylus. Because low-frequency signals are employed, the unit does not experience blocking or occlusion problems.

The 3Space Digitizer costs about $25,000, the vendor said. Polhemus Navigation Sciences can be reached through P.O. Box A, Essex Junction, Vt. 05452.

On-Line Turnkey Gives Layered Processing

SUNNYVALE, Calif. — Dialogic Systems Corp. has introduced an on-line turnkey system designed to provide efficient, interactive processing in the IBM MVS or plug-compatible mainframe environment.

The Dialogic/One system reportedly implements a new concept called layered interactive processing by integrating the Dialogic/10 Satellite Computer into the IBM MVS system environment. Layered interactive processing involves physically distributing different computing tasks on separate layers of machines — the mainframe and the Dialogic/10 computer — while maintaining the full-functional integration of a single system, the vendor said.

Under the Dialogic/One system, the mainframe continues to perform batch processing and data base management, while the Satellite Computer off-loads 40% to 60% of the interactive processing, transparent to both the user and the mainframe. Also, by off-loading the interactive processing, the Dialogic/10 computer is said to boost programmer productivity by providing consistent subsecond response time at the user's IBM 3270 terminal.

The Dialogic/10 hardware architecture is based upon multiple microprocessors — up to 32 — working in parallel, interconnected through a wideband communications channel and sharing access to a high-performance hard disk drive system. The software consists of user software said to be a replacement for IBM's TSO and a Vtam-based operating system that is distributed between the mainframe and the Dialogic/10 Satellite Computer.

The user software, a superset of TSO, includes a set of application packages specifically targeted for application developers and systems programmers.

Shipments are scheduled to begin in August, with prices ranging from $198,000 to $385,000, depending upon configuration. Software is available on a monthly or fully paid-up license. Dialogic Systems is located at 1335 Bordeaux Drive, Sunnyvale, Calif. 94089.

CAE/CAD Package Runs On Apollo, DEC Systems

SAN JOSE, Calif. — VLSI Technology, Inc. (VTI) has announced what it calls the industry's first completely integrated computer-aided engineering and design (CAE/CAD) integrated circuit design package said to be capable of translating engineering schematics to custom very large-scale integrated (VLSI) circuits. The package runs on Apollo Computers, Inc.'s Domaine system and on Digital Equipment Corp.'s VAX-11 system.

Separately, VTI and DEC have announced a joint marketing agreement wherein the two companies will cooperatively market VAX-11 superminicomputers with VTI software developed for CAD of VLSI circuits. Included in that agreement are provisions for DEC and VTI to collaborate on joint promotional activities and sales presentations of the turnkey package.

VTI's CAE/CAD package, the Logic Compiler (Logicomp) system, reportedly includes all the tools needed to enter a system schematic, verify the correctness of the design through simulations, build a corresponding physical layout through the use of VTI's Cell Compiler library and verify the interconnection and function correspondence to the schematic representation.

VTI's Logicomp for the Domaine system costs $50,000; a turnkey package including the Apollo hardware is $75,000; and a software license for the VAX-11 costs $100,000, according to VTI.

VTI is located at 1101 McKay Drive, San Jose, Calif. 95131.

Honeywell Out With Systems

(Continued from Page 63)

on-line disk storage. The basic system is a 512K-byte computer packaged with up to two 40M-byte Winchester-type mass storage devices; one 5¼-in., 650K-byte diskette; power supply; and related electronics in a 30-in.-high floor enclosure. It can connect a combination of up to 28 CRTs and printers for DP, data entry and office automation applications.

Shipments of the Microsystem 6/20 will begin in September. Prices start at $17,000 for a system that includes a central processor and support of up to five workstations and printers. Workstations that can be configured with the system start at $795, and printers begin at $1,195. The DPS 6/40 is available immediately at prices beginning at $27,000, and an entry-level configuration includes support of four communications lines.

Honeywell is located at 200 Smith St., Waltham, Mass. 02154.

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Announced at Graphics Conference

Ramtek Display System, Thermal Printer Out

CHICAGO — Ramtek Corp. announced at the National Computer Graphics Association conference here a compact graphics and imaging display system and introduced a thermal printer it said can produce color-paper hard copy or overhead transparencies in under 60 seconds.

The RM-9465 display system is small enough to fit beside a desk and is compatible with the firm's top-of-the-line color graphics system.

The Model 4111 Colorgraphic Printer produces an exact duplicate of an image on the CRT screen and reproduces it in about 45 seconds on paper or on overhead transparency in a 160mm-by-120mm size.

In its basic configuration, the RM-9465 consists of a Zilog, Inc. Z80-based display processor and 64K of random-access memory (RAM) to store pictures in raster scan format, the vendor said. It provides a resolution of 1,280 by 1,024 by 4 pixels and up to 24-bit refresh memory planes. Vector writing speeds feature up to 16K vectors per sec, and the system can display a maximum of 1.3 million colors simultaneously from a palette of 16 million, according to Ramtek.

The RM-9465 may be user-configured with either Z80- or Motorola, Inc. 68000-based controllers, with the Z80 configuration offering 12K RAM optionally expandable to 256K and the 68000 including 240K RAM, the vendor said.

The context-switching feature of the graphics system enables independent graphics operations on multiple workstations. Other features include local pan and zoom, image enhancement, entity detection, graphics functions, display list processing, decluttering, coordinate transformation and split-screen clipping, according to Ramtek. Interactive devices include keyboards, trackballs, joysticks, digitizing tablets and light pens.

The graphics system is the basis for Ramtek's new computer-aided design and manufacturing system, which will accommodate two-dimensional drawings, layouts and schematics to three-dimensional wire frame models and high-speed generation of shaded pictures for solid modeling applications, the vendor said. The first model to be introduced, Model 9465/CCB, offers color graphics for line-drawing applications.

According to Ramtek, delivery of the RM-9465 is 60 days after receipt of order and is priced from $11,250. A six-user configuration of the Model 9465/CCB is available for $63,100.

The Model 4111 printer employs a subtractive color transfer process to produce hard copy in eight colors. Ramtek said, adding that cost per copy is approximately 25 cents for paper and 65 cents for transparencies. The Model 4111 printer is priced at $6,500. Information is available from Ramtek, 2211 Lawson Lane, Santa Clara, Calif. 95050.

Zeta 887 Plotter Links Directly To IBM 3274

CONCORD, Calif. — Nicolet Zeta Corp. has announced the Zeta 887, an eight-color pen plotter that connects directly to an IBM 3274 or 3276 cluster controller.

The Zeta 887 can operate in an IBM Systems Network Architecture/Synchronous Data Link Control environment. The unit can plot at 20 in./sec with 2G acceleration. All eight pens are carriage mounted, and a continuous feed media allows creation of multiple plots without operator intervention. Various types and widths of media are supported, including 297mm and 11-in. wide drawings, the vendor said.

The commands required to drive the Zeta 887 can be generated by any application program that uses industry-standard plotting routines, the vendor said.

The Zeta 887 costs $7,950, the vendor said through P.O. Box 4003, Concord, Calif. 94524.

BLC-8230 Joins Drives On Board

SANTA CLARA, Calif. — National Semiconductor Corp. has announced two Intel Corp. multibus-compatible mass storage controllers said to combine Winchester and floppy disks on the same board.

The BLC-8230 reportedly is capable of supporting up to two 8-in. Winchester drives and two 8-in. floppy disk drives, while the BLC-8232 is said to support up to two 5¼-in. Winchester drives and either 8-in. or 5¼-in. floppy disk drives.

The units feature either 8- or 16-bit I/O addressing, programmable error retry with media fault management and on-board diagnostics. The BLC-8230 costs $1,500, and the BLC-8232 costs $1,400 in single quantities from the firm at 2900 Semiconductor Drive, Santa Clara, Calif. 95051.

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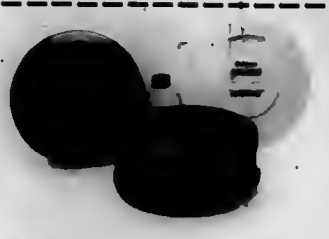
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HP EGS/200 Creates Engineering Drawings

PALO ALTO, Calif. — Hewlett-Packard Co. has announced the Engineering Graphics System/200 (EGS/200), which can create engineering drawings for mechanical, electronic and general design applications.

The EGS/200 is an interactive system that allows the user to operate with either a screen menu, graphics tablet or keyboard. The unit is based on HP's Graphic Editor, which performs all of the drawing operations, according to the vendor.

Features include four personalities that can be tailored to the user's application: general drawing for the novice user; schematic drawing for creating electronic circuit diagrams; printed-circuit board layout; and technical drawing for two-dimensional mechanical drawings, the vendor said.

A typical EGS/200 workstation includes an HP Series 200 desktop computer with the choice of either a 12-in. black-and-white or 19-in. color display, a graphics tablet, Winchester disk drive and a large-format plotter that can accommodate up to eight color pens, the vendor said.

Multiple EGS/200 workstations can be connected using HP's Shared Resource Management system. In addition, information or drawings can be transferred between workstations, the vendor said.

The EGS/200 software costs $10,000, the vendor said. A typical workstation including software, processor and peripherals costs about $50,000, according to the vendor.

More information is available from HP sales offices or by mailing inquiries to: Inquiries Manager, 1820 Embarcadero Road, Palo Alto, Calif. 94303.

CRT Line Features Graphics

MONTREAL — Matrox Electronic Systems, Ltd. has introduced a line of high-resolution interactive color graphics terminals.

The GXT-1000 line is based on Intel Corp.'s 80286 processor, supporting both two-dimensional and three-dimensional transformations, local segments and 64K by 64K by 64K virtual coordinates.

The GXT-1000 features a resolution of up to 1,280 by 1,024 pixels, four to 16 planes of video memory, multiple viewports and drawing speeds of up to 20,000 vectors per second.

In addition to the 80286-based CPU, the GXT-1000 includes six additional pipelined processors.

The GXT-1000 is priced at $14,560. More information is available from Matrox Electronics Systems at 5800 Andover Ave., Montreal, Que. H4T 1H4.

HP Upgrades Its Series 80

(Continued from Page 63)

commercial and technical applications, the spokesman explained.

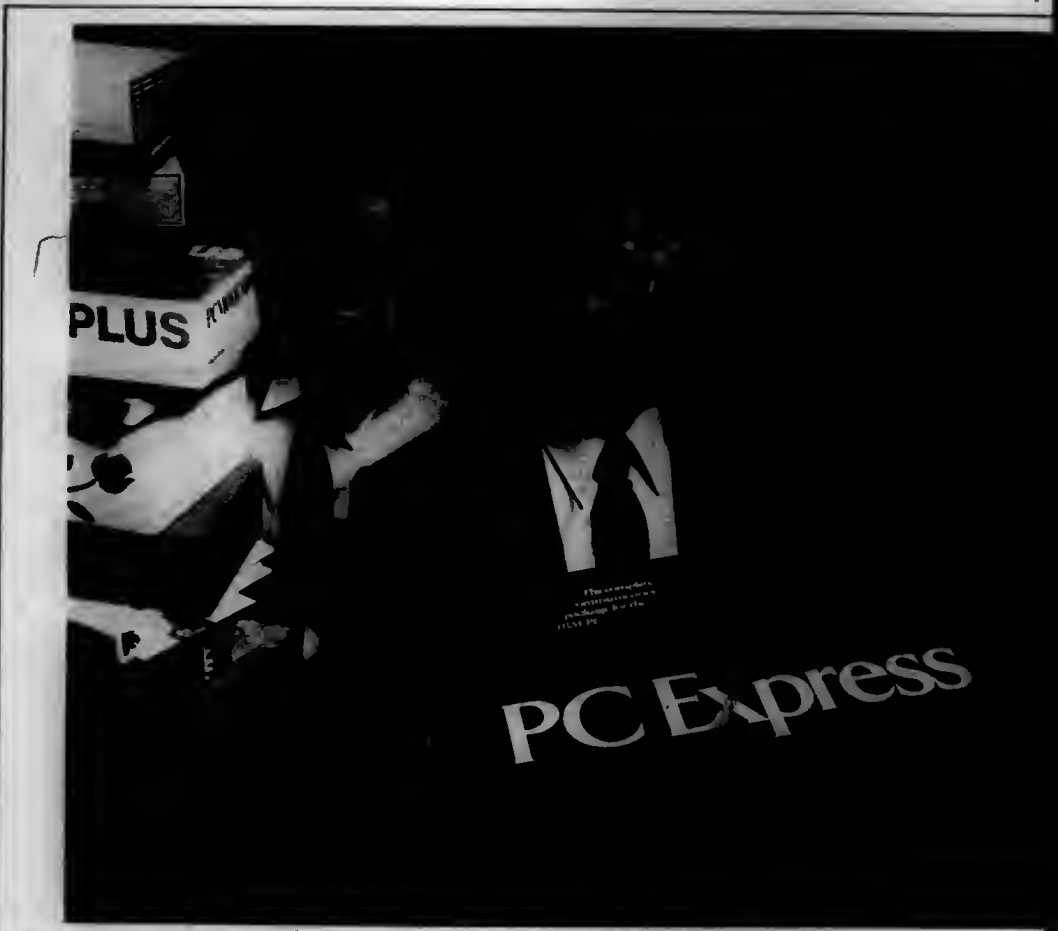
Both the 85B and 86B will eventually replace their 85A and 86A counterparts, which are scheduled to be retired from sales in February 1984 and November 1983, respectively, the source said.

Equipped with a built-in HP-IB peripherals interface and expandable to 640K bytes of RAM, the 86B costs $2,820 with one 3½-in. minifloppy unit and $3,195 in a dual-diskette configuration.

A basic 85B sells for $2,995 and can expand to incorporate up to 544K bytes of RAM. A field upgrade from an 85A to an 85B costs $1,095.

The five additional 75C software packages, which come in the form of plug-in read-only memory modules, range in price from $95 to $295. The Term/80 terminal emulator, which makes the 86B functionally resemble an HP 2622 display unit, costs $300, compared with $350 for the Series 200 CP/M.

All the above personal computer enhancements and product additions can be obtained from local HP sales offices and authorized dealers.



Now, get a complete communications package in just one package.

Compuscan Unveils Alphaword Page Readers

FAIRFIELD, N.J. — Compuscan, Inc. has announced the Alphaword Series 80 line of modular optical character recognition page readers.

The Series 80 can be used either on a desk or standing on its own pedestal. Characters on typewritten pages are identified, converted to electronic signals and transmitted to all popular word processors, computer systems, communications systems and typesetters, the vendor said.

There are three models of the Series 80. Models A and B are capable of scanning 145 page/hour, while the Model C can scan up to 250 page/hour. Each of the scanners supports one RS-232C compatible, asynchronous or synchronous interface. The models are also field upgradable, the vendor said.

Other features include the ability to read a variety of popular typestyles, such as: Courier 10, Courier 12, Prestige Elite, Prestige Pica, Letter Gothic and OCR-B. In addition, the unit features self-diagnostics and an operator message display and menu, the vendor said.

Model A costs $12,900, Model B costs from $13,990 and Model C costs from $14,990, Compuscan said from 81 Two Bridges Road, Fairfield, N.J. 07006.

Floppy Disk Controller Introduced

MOUNTAIN VIEW, Calif. — A floppy disk controller said to provide serial I/O for an RS-232 terminal, preprogrammed read-only memory with system bootstrap and diagnostic routines has been introduced by Cromemco, Inc.

The Model 64FDC is also said to offer full read-write format capability for any combination of single- or double-sided, single- or double-density 5-in. or 8-in. floppy disks.

The unit normally handles up to four drives in a daisy chain configuration, while 16 drives may be connected if the drives decode the four drive-select lines. The controller also supports slimline 8-in. drives.

The controller costs $595 from Cromemco at 280 Bernardo Ave., P.O. Box 7400, Mountain View, Calif. 94039.

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Subsystems Compatible With DEC

WESTMONT, Ill. — First Computer Corp. has introduced a series of magnetic tape storage subsystems that are compatible with Digital Equipment Corp.'s LSI-11, PDP-11 and VAX-11 computers.

Dubbed the Cachetape 75, the series reportedly offers a more attractive price/performance solution to intensive start/stop applications such as data logging, file consolidation, transactional backup and real-time processing.

The subsystems can replace 45- and 75 in./sec tape drives and feature high burst rates, reliability and simplicity of streaming mechanics.

The subsystems are available in two series: the TS07/TSV07, which provides single 1,600 bit/sec density, and the TS08/TSV08 series with 1,600/3,200 bit/sec densities. Prices start at $7,100 for a rack-mountable subsystem compatible with the DEC PDP-11/23-Plus. First Computer is located at 645 Blackhawk Drive, Westmont, Ill. 60559.

Correction

Honeywell, Inc.'s DPS 7 series is not a family of superminis as defined in "Honeywell Eases Mini-to-Supermini Upgrade" [CW, July 4]. The DPS 7 is a series of 8-bit, medium-scale mainframes with a word length of 32 bits or four bytes, the vendor said. Simllarly, the Level 62 is not a minicomputer, but also an 8-bit mainframe, but with 16-bits.

Combine Regulator, Isolator, Filter Functions

DG Unveils Five Power Conditioning Systems

MILFORD, Mass. — Data General Corp. has introduced a line of five power conditioning systems it said are designed to safeguard computer equipment and data from damage due to electrical power irregularities.

The systems combine the functions of power regulator, isolator and filter, according to the vendor, and are rated to supply computers with ac output of 120V, 208V or 240V (±5%) depending on the model, while input current ranges 35% below to 15% above these voltages.

DG said the systems will neutralize voltage spikes up to 6,000V, lasting as little as .5 μsec, and will also eliminate current-transmitted irregularities known as transients or noise; noise rejection is rated at 120db, common mode and 60db, transverse mode.

Linking ac electrical source with CPU, memory and peripherals, the systems are said to eliminate most computer failure due to unsuitable electricity, which the vendor estimates causes a high proportion of computer problems.

Fred Cochrane, DG's vice-president of engineering services, said, "We're so confident in this power conditioning system that as long as it and the equipment connected to it are covered by our On-Call service agreement, we'll pick up the tab for any repairs on that equipment due to power problems that fall within the system's rated performance capabilities."

Each model has multiple output receptacles that allow several computer devices to be plugged in at once, and the systems can be used in combination to power large or distributed computer installations, the vendor said.

The systems, according to a spokesman for DG, are UL- and CSA-listed, and are compatible with computer equipment requiring single-phase power.

Prices are $595 for a 1-kVA model, which the vendor claims can protect a typical desktop computer consisting of CPU, terminal and 15M-byte disk; $995 for a 2-kVA model; $1,595 (3 kVA); $2,650 (5 kVA); and $3,150 (7.5 kVA).

DG said it will offer on-site service for the systems under its On-Call maintenance program. Monthly maintenance prices for the 1-kVA model start at $5, including parts and labor.

Shipments of 1-, 2- and 3-kVA models will be made five days after receipt of order, and 5- and 7.5-kVA models will be shipped 90 days after receipt of order, according to the Field Engineering Division of DG, located at 50 Maple St., Milford, Mass. 01757.

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Jupiter 7 Plus Released, Has More Options

BERKELEY, Calif. — Jupiter Systems, Inc. has announced the Jupiter 7 Plus, a color graphics terminal with a larger screen, more display area and more interface options than the firm's earlier Jupiter 7 model.

The unit includes hardware that is antialiasing for dejagged vectors. Newly added features include antialiased, proportionally-spaced character fonts for more pleasing alphanumeric displays. Jupiter 7 Plus contains eight 1K-byte by 1K-byte memory planes as standard equipment. This means the unit can display 256 colors simultaneously out of a palette of 16.7 million colors, the vendor said.

Other standard features on the Jupiter 7 Plus include high-speed graphics generation, zoom, pan and scroll and a hardware tri-level blue grid for faster layout. The fully programmable keyboard also has dual joysticks and a built-in sound synthesizer. A pixel block-moving system can shift any operator-defined shape at 1M bit/sec, the vendor said.

Peripherals supported include a digitizer tablet and a 125-color ink jet printer. In addition, a high-speed parallel interface for data transfer to a variety of host computer systems is also available, the vendor said.

The Jupiter 7 Plus costs from $15,200 to $19,000, Jupiter Systems said from 2126 Sixth St., Berkeley, Calif. 94710.

Portable Regulator From Topaz Debuts

SAN DIEGO — The Powermark Division of Topaz, Inc. has introduced a portable ac Voltage Regulator featuring a duplex output receptacle and a 6-ft line cord for plug-in installation.

The unit employs multitap autotransformer technology that enables the system to correct voltage fluctuations in less than one cycle of line frequency. Peak-limiting circuitry and a low-pass filter protect against noise transients and voltage spikes.

Prices start at $800 from the firm at 3855 Ruffin Road, San Diego, Calif. 92123.

Message Router Provides Interchange For Decmail Users

MAYNARD, Mass. — Digital Equipment Corp. recently announced Message Router, a communications component for its office information systems said to provide universal document interchange from a variety of systems. It will enable Decmail users to exchange messages with other systems.

Message Router runs on DEC's VAX-11 and PDP-11 families of minicomputers, the vendor said, and was designed to optimize the transfer of messages between nodes of a Decnet network.

Besides allowing communications across the company's computer lines, DEC said the software provides a potential gateway to communicate with any other vendor that adheres to National Bureau of Standards message transport standards.

Message Router is licensed at $4,000 for VAX-11 systems, $2,000 for PDP-11 minicomputer systems and $1,000 for PDP-11 microcomputer systems. The package can be installed by customers and is scheduled for shipment by early fall for VMS and late fall for RSTS/E and RSX-11M-Plus. More information is available from DEC, Maynard, Mass. 01754.



The Interactive Systems/3M Lan/1 uses a token-passing protocol for traffic control on the network.

3M Broadband Local Net Features NIU Connection

ST. PAUL, Minn. — Interactive Systems/3M has announced a broadband local-area network said to provide integrated communications capabilities for a variety of users in manufacturing plants, offices and educational institutions.

Communicating elements on the LAN/I are connected to the broadband cable through microprocessor-based Network Interface Units (NIU).

Two-, four- and eight-port NIUs are connected between the coaxial network and the individual electronic devices, a 3M spokesman said. NIUs handle data packet formatting, port contention and transmission acknowledgment.

Token-Passing Protocol

LAN/1 uses a token-passing protocol for traffic control on the network. NIUs capture the circulating token for a preset time slot during which data packets are transmitted. While LAN/1 is a broadband system, it operates as a logical ring or circular message network, a vendor spokesman said.

The local-area network is said to support up to 10,000 users on five channel pairs with network data rates of up to 2.5M bit/sec. The maximum terminal rate is 19.2K bit/sec. It will support both asynchronous and synchronous devices.

Because of distributed intelligence in each NIU, the LAN/I does not require a head-end computer system for communications control. The only control device external to the interface units is a channel converter that remodulates transmitted signals and converts them to a higher frequency for retransmission and reception. All signals on the network are passed through the channel converter, a spokes-

(Continued on Page 70)

Supports Up to 14 Terminals

Dictaphone Infocenter Debuts

RYE, N.Y. — Dictaphone Corp. has announced an electronic filing and hard disk storage system that functions as a mass storage and retrieval central file.

The Dictaphone Infocenter reportedly supports up to 14 terminals, as well as Dictaphone standard printers and the Dictascan optical character recognition reader.

The Infocenter is available in 20M-, 50M-, 70M-, 84M-, 100M- or 168M-byte versions. It also includes a start/stop cartridge tape drive and operates on a Motorola, Inc. M68000 16-bit processor with Microsoft, Inc.'s Xenix software based on the Unix V7 operating system.

Prices for the Infocenter start at $9,995.

Software library packages for Dictaphone's System 6000 word processor were also introduced. They include a legal management system, specialized dictionaries for legal and medical applications and a Digital Research, Inc. CP/M tutorial workshop.

The Dictapak library contains applications packages that may be employed by users to customize generic word processing for specialized tasks, according to a vendor spokesman. The legal management system aids the record-keeping functions of legal offices by streamlining the production of client bills, financial reports, management reports and docket control and calendaring, according to a vendor spokesman.

The legal and medical software dictionaries consist of a standard 80,000-word dictionary as well as 20,000 specialized terms used by legal and medical professionals.

The CP/M tutorial workshop package is a self-paced orientation program consisting of a disk and booklet that explain how to use software accessible through CP/M on the System 6000.

The Dictapak library is priced at $975. The dictionaries cost $300 each, and the CP/M workshop is priced at $115.

More information is available from Dictaphone, 120 Old Post Road, Rye, N.Y. 10580.

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Syntrex Unveils Support System

EATONTOWN, N.J. — Syntrex, Inc. has introduced a professional support facility that reportedly integrates personal computing, automatic file searching, communications and word processing into one environment.

The Pro Professional Support System features a Digital Research, Inc. CP/M-86-compatible program interface for access to personal computing software; an electronic file room facility that is said to search automatically and find anything in an electronic file of documents; a text editor; and a family of communications terminal emulators.

Pro is available on the professional and secretarial versions of the Syntrex Aquarius workstation, as well as on the company's Gemini and Polaris clustered systems.

The Pro system is priced at $495 for Syntrex stand-alone workstations and $1,995 for the company's clustered systems.

Syntrex is located at 246 Industrial Way W., Box 657, Eatontown, N.J. 07724.

Letter-Writing Software
'Ghostletters' Targets IBM Micro

LOS ANGELES — Einstein Corp. has introduced letter-writing software for personal and business use on the IBM Personal Computer.

The menu-driven Ghostletters software offers such categories as inquiries and requests. Each category has several subcategories.

The package of Ghostwriter and Ghostletters (Social and Civic) costs $449. Individual Ghostletter packages cost: Social and Civic, $49.95; Consumer and Employment, $79.95; Business Operations I, $199.95; and Business Operations II, $199.95.

Einstein is located at 11340 W. Olympic Blvd., Los Angeles, Calif. 90074.

Wang Introduces Arabic WP Package

LOWELL, Mass. — Wang Laboratories, Inc. has introduced an Arabic word processing hardware/software package for use with its Office Information System (OIS).

The package reportedly features Arabic language menus, bilingual Arabic/English functionality and automatic character shape selection, all in agreement with the rules of Arabic orthography and grammar while in the English mode, a company spokesman said.

An Arabic Office Information workstation costs $7,205.

The Arabic workstation must be added to a standard OIS system with a Wang 5577 matrix printer, according to a spokesman for the firm.

More information is available from Wang, located at One Industrial Ave., Lowell, Mass. 01851.

WP Software Announced For Edit Pak

ORLANDO, Fla. — Technology International Corp. has announced word processing, electronic spreadsheet, data base management and sorting software for its Edit Pak System II and III computer systems.

Other business software available for the systems includes accounts receivable, accounts payable, sales invoicing, general ledger, inventory control and payroll. Specialized packages are available for medical, dental and church management.

Edit Pak System II costs $3,995 including Digital Research, Inc.'s CP/M, word processing and mail-merging software. With a 40-char./sec letter-quality printer, it costs $5,995.

Edit Pak System III, including the same software as System II, costs $4,495; with a printer it costs $6,495. Technology International is located at 9715 S. Orange Ave., P.O. Box 13457, Orlando, Fla. 32859.

Format Interfaces Introduced

SAN JOSE, Calif. — Dest Corp. has announced format interfaces said to expand its Series 200 desktop page readers' capability to enter documents automatically into IBM 5520 word processors and selected RS-232 interface systems.

The IBM 5520 interface enables the firm's Workless Station to operate in a bisynchronous communications mode to the shared resource system.

The interfaces cost $1,495 each, a spokesman for the firm said.

Dest is located at 2380 Bering Drive, San Jose, Calif. 95131.

Broadband Local Net Debuts

(Continued from Page 69)

man said.

Hardware also includes an optional Network Monitor Unit (NMU) that records and updates statistics on network operation.

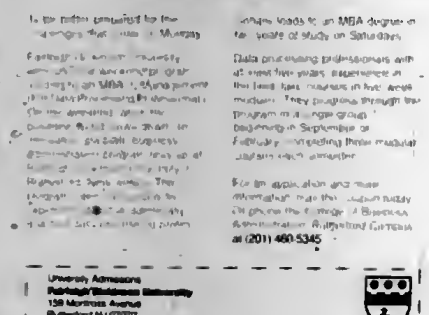
Data from the monitor unit is used to optimize system performance and facilitate routine maintenance and trouble-shooting.

The NMU consists of an IBM Personal Computer with 3M software connected to the network via a standard NIU. The Personal Computer can also serve as a user terminal on the network.

A two-port NIU costs $1,400; a four-port NIU costs $2,100; and an eight-port NIU is priced at $3,200.

The NMU is available for $5,700. Typical cost per port with an eight-port NIU is $360. More information is available from 3M, P.O. Box 33600, St. Paul, Minn. 55133.

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DEC Chasing Bigger Share of Japanese Market

By Bill Laberis
CW Staff

Through efforts to become "more Japanese," Digital Equipment Corp. has been aggressively pursuing larger chunks of a Japanese computer market long dominated by IBM and the bigger native firms.

In the past year, DEC has initiated several moves to increase its modest Japanese market share, moves the company hopes will push sales well past the $200 million mark by 1985. Sales in the fiscal year just ended totaled an estimated $100 million.

"We're getting very aggressive there, no doubt," Robert Katz, DEC's general international area marketing manager, said in a recent interview. "It's a tough market, so you have to be."

Indeed, DEC's presence in the Japanese market pales next to the likes of IBM Japan, Ltd. and Fujitsu Ltd., each of which registers about 25 times more computer-related business in Japan than does DEC.

Analysis

However, changes in market structure, user demand and the Japanese political climate, coupled with DEC's apparent determination to broaden its Japanese beachhead, are combining to boost DEC's Japanese sales more than 40% per year, with the possibility of even more prodigious growth.

Distinct patterns in DEC's Japanese strategy began to emerge last fall. At that time, DEC upgraded its operations there from that of a liaison office to the level of a wholly owned subsidiary, Nihon Digital Equipment Corp., known formerly as Digital Equipment Corp. International Japan.

To establish a greater research presence in what can be a complicated marketplace, Nihon DEC late last year also launched Nihon Digital Equipment Research and Development Center KK in Tokyo. It is only DEC's second major engineering facility outside the U.S., and will employ about 100 Japanese engineers by mid-decade, according to the "EDP Japan Report."

Work at the center is expected to target products specifically suited to the Japanese market, such as those employing the complex Kanji character set and running on the company's VAX-11 superminicomputers.

Also at the end of last year, DEC delivered one of its System 20 Model 60 computers to anchor the research ef-

(Continued on Page 74)



Charles B. Wang

Charles B. Wang Talks Shop

By Paul Gillin
CW Staff

JERICHO, N.Y. — In bestowing its 1982 award for outstanding chief executive officer (CEO) in the software industry to Charles B. Wang of Computer Associates International, Inc. (CA), *The Wall Street*

(Continued on Page 73)

Paradyne Says Taxpayers Suffering From SEC Suit

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — The Security and Exchange Commission's (SEC) suit against Paradyne Corp. is causing taxpayers, as well as Paradyne, to suffer, according to the company's director of federal marketing.

The suit, filed last March, has essentially forced the Social Security Administration (SSA) to halt a vast computerization program in mid-stream, delaying implementation of a program designed to save the SSA $134 million per year and minimizing the impact of $40 million already spent, Paradyne's Frank Dolan said in a recent interview.

Meanwhile, another Paradyne spokesman interviewed said it was confusion over the difference between an "operational capabilities demonstration" (OCD) and a "benchmark" that caused the SEC to file suit in the first place.

Paradyne, located across Tampa Bay in Largo, Fla., has been charged with using fraud in March 1981 to win a $100 million contract from the SSA encompassing more than 2,000 smart terminal systems.

Specifically, the commission has charged that at the OCD in December 1980, Paradyne used an "empty box with

(Continued on Page 72)

AMD, Intel Profits Indicate Recovery For Semi Industry

SUNNYVALE, Calif. — The bulging order books reported by all semiconductor makers last quarter [CW, May 9] have translated into fat bottom lines for two chip manufacturers, whose latest quarterly reports indicate that recovery within the semiconductor sector is steaming along full speed ahead.

Continuing on its explosive growth track, Advanced Micro Devices, Inc. (AMD) posted a 115% quarterly earnings gain, netting profits of $8.1 million or 28 cents per share. Revenues, meanwhile, climbed 30% to $108 million, the company reported.

(Continued on Page 78)

Top Quarterback in the EDP



Why Beall?

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John Beall & Company, Inc.

SEC Suit Hindering SSA Program: Paradyne

(Continued from Page 71)
blinking lights" and a relabeled Digital Equipment Corp. PDP-11 minicomputer to represent key parts of the terminal system it was proposing to sell the SSA.

Regarding the latter charge, Paradyne officials have claimed it is common practice in the computer industry for one vendor to use another's equipment to demonstrate capabilities. It is also common for one vendor to fulfill a contract by purchasing components from another, the company said.

The Paradyne spokesman said that the SSA's request for procurement was a "functional specification," meaning the the SSA would not be concerned with internal details of the equipment.

Regarding the "empty box" charge, the spokesman admitted Paradyne did not have an operational encryption unit at the OCD. He added, however, that at a bidder's conference preceding the OCD, SSA officials said vendors would be allowed to make oral presentations to demonstrate various capabilities required by the specifications.

On the day of the OCD, the spokesman said Paradyne gave the SSA a verbal presentation of its system. The presentation included a summary of the encryptor's features to show its capabilities.

Paradyne's Dolan referred to a series of reports by the General Accounting Office (GAO) going back to 1975, which have criticized the SSA's data processing systems and procedures. One report estimated that computerizing the agency's 1,400 field offices would reduce costs by $134 million per year, largely by putting 11,400 employees out of work.

A distributed data processing network with programmable terminals and directly addressable local storage was a key requirement of the system envisaged by the GAO, Dolan claimed.

This is what Paradyne has attempted to supply the SSA, Dolan said. But while most of the hardware has been installed and is operating (by both Paradyne's and the SSA's account), most of the software needed to support distributed data processing at the local offices has not been because the software installation was covered by a separate contract, which the agency canceled after the SEC suit was filed.

Dolan charged that the SSA has spent approximately $40 million on the system to date, but cannot reap the major benefit of that investment. Furthermore, he said, the SSA is wasting more money by leasing most of the terminals installed to date rather than purchasing them and by failing to exercise an option to acquire some 800 additional terminals.

The SEC's complaint, however, is not that the Paradyne system could not save the taxpayers a bundle, but that the company used fraud to win the contract. Underlying this charge is the question of whether Paradyne was required to present, at the OCD, an operational version of the system it was bidding.

Paradyne insists the answer to that question is "no." As Senior Vice-President George B. Pressly has claimed, the intent of the OCD was for the SSA to determine that the vendor could satisfy SSA's overall needs. The real test of whether the equipment exactly met the terms and conditions of the contract, he added, was determined in a subsequent acceptance/benchmark test, at which Paradyne presented a working system that received high marks from the SSA evaluation team.

In addition to the SEC, the U.S. Department of Justice, the House Government Operations Committee and the Inspector General's Office of the Department of Health and Human Services are pursuing separate investigations of the Paradyne case.

Wang Charges ACS With Selling Its Tech

LOWELL, Mass. — Wang Laboratories, Inc. has filed suit against Applied Computer Sciences, Inc. (ACS), charging that the company "cracked the code" of a rented Wang distributed data processing (DDP) system and then used the technology gained to make and market Wang-compatible printers and workstations.

Wang has asked a federal District Court judge to issue a permanent injunction enjoining ACS from offering these peripherals, asking further for any "equitable relief" the court deems appropriate.

Roy Camp, ACS president and chief executive officer, said, "In question is Wang's host-to-peripheral interactive system, which we successfully interpreted from information available to the public."

According to the complaint, ACS rented a Wang OIS DDP system in December of 1981. Wang claims its rental conditions specified that the equipment would not be altered without Wang's approval.

Wang claimed ACS decoded the OIS system and "has adapted printers and workstations utilizing the technology in the rented Wang [DDP] system ... on information and belief, these printers are copies of the printers furnished by Wang ... which ACS rented."

Adapso to Host Merger Seminar

FORT LEE, N.J. — Broadview Associates, will host its fifth annual merger and acquisition seminar for the Association of Data Processing Service Organizations, Inc. (Adapso) on Sept. 19 at the Waldorf Astoria In New York.

The day-long seminar is geared to the interests of financial, legal and corporate managers.

Registration for the seminar is $250 with further information available from Adapso at 1300 N. 17th St., Arlington, Va. 22209.

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Micro Software Shakeout Seen Paring Vendor Mart

JERICHO, N.Y. — A shakeout is coming in the microcomputer software industry which will leave a much smaller number of vendors marketing and supporting a broad range of software.

However, there will still be plenty of room for independent initiative, according to Charles B. Wang, president and chief executive officer of Computer Associates International, Inc. (CA).

In a recent interview, Wang called support and training, "the main ingredients missing in the micro world. There's a tremendous amount of software that people have developed and just don't know what to do with," the 38-year-old chief executive stated.

CA, which is known primarily for its IBM DOS systems software, took the plunge into micro software late last month when it acquired Information Unlimited Software, Inc., a Sausalito, Calif.-based firm that markets the Easy series of software packages.

The deal continues a recent trend among mainframe-oriented software companies to buy into the micro market. That trend is likely to continue, Wang indicated, as micros penetrate further into business. With structured support and training networks already in place, the mainframe vendors and the largest suppliers of micro software can offer the support business users demand, he noted.

"We had one customer who had bought [an IBM] Personal Computer, had it six or nine months, and on his shelf were all packages still in plastic wrap," Wang said. Wang added that there is still plenty of room for the "ma and pa" operations in the micro software industry, "and they will be the ones who will drive the market."

Wang Cites Business Thrust As Today's Marketing Force

(Continued from Page 71)

Transcript recently cited the executive's "much-admired capabilities in the areas of sales and marketing."

Such wording acknowledges an evolution in the industry, Wang said in a recent interview. In software today, "companies that are successful are more business-oriented rather than technology-driven."

Although he characterizes himself as a fairly conservative businessman, the Shanghai-born Wang has built CA from a $6.6 million company in 1978 to a $58 million firm last year, using a strategy that emphasizes a strong international marketing base and a methodical entry into new markets.

CA, which began as a supplier of systems software for IBM DOS users in 1976, has expanded in the last year into the IBM OS market, financial applications software, data base management and, most recently, microcomputers.

Firm Acquisitions

In most cases, CA has penetrated new markets by acquiring existing firms, a tactic that seems appropriate for a firm that started its life as a U.S. affiliate to European Computer Associates International but later rose up and devoured the parent firm.

In the past year, CA has gone on an acquisition binge, buying Stuart P. Orr Associates, Inc., a Pasadena, Calif.-based vendor of financial applications software; Capex Corp., a Phoenix-based supplier of OS systems software and a company nearly equal in size to CA; and late last month, Information Unlimited Software, Inc., a major maker of microcomputer software.

Wang noted that the new marketing orientation of the software industry has prompted a blitz of acquisitions in the field recently. "You can have a lot of the state-of-the-art software and if you can't market it, what's it going to do for you?" he asked.

More Than Sum

In many cases, the whole of the acquisition equals more than the sum of the two companies involved, Wang said. Capex, for example, "was moving toward DOS while we were moving toward OS. We could leverage off [its] U.S. market strength coupled with the fact that [it] had the OS market pretty well covered," he said.

Similarly, Orr "had a very strong product line but no marketing," Wang said. CA used the acquisition to vault into the financial applications arena, carving a niche from which it will work to expand its presence.

To support that presence, CA relies heavily on its international marketing force. About 35% of the company's employees are based overseas, many in local companies that work independently of the American parent.

"We have mainframe installations in Germany, Italy, France and the UK, and we do research and development at all those installations," Wang said.



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DEC Aggressively Pursuing Japanese Market

(Continued from Page 71)

forts of the Institute for New Generation Computer Technology, which is directing Japan's much-touted fifth-generation computer project. DEC hopes the System 20, with its Tops-20 proprietary operating system, will become the favorite of Japanese users experimenting with high-level artificial intelligence languages.

And in one of its more significant moves, Nihon DEC earlier this year hired a native executive director, Masanobu Watanabe, a former NCR Japan executive director. Native Japanese have also been hired to staff Nihon DEC's sales force for the first time, as natives had formerly been used as service and other support staff almost exclusively.

"We're becoming more Japanese, where heretofore we looked to a certain extent like an American company saying, 'Do it our way or else,'" Katz said. "The problems we had there in the past — and there weren't many — were of our own causing . . . You have certain expectations there built by your Japanese competitors. If you don't meet them, you will deal in a very tough market."

In noting DEC's modest Japanese market share despite having had a presence in the market since 1968, Katz said the largest segments of the Japanese market "never got to [the] real-time, on-line services . . . that have been DEC's strength . . . the bulk of the market is in batch processing." Katz said this off-line format has traditionally extended down to small business systems, where DEC's sales have been particularly weak.

But the advent of local-area networks and the personal computer explosion bode well for Nihon DEC, Katz claimed. Industry figures project a compounded 65% annual growth in personal computer shipments in Japan through 1985, with an increasing number of the computers being tied to host systems.

As the parent company has done in the U.S., Nihon DEC has begun actively marketing the Rainbow 100 and Professional 300 personal computer lines in Japan. This market, however, is extremely crowded in Japan and getting more so, with over 70 vendors selling personal computers in the Japanese market.

A potentially crowded supermini market threatens Nihon DEC's bread-and-butter 32-bit offerings such as the VAX-11, which accounts for about 30% of the subsidiary's sales. While this market segment in Japan is targeted for 50% annual growth throughout the 1980s, native companies such as Fujitsu and Nippon Electric Co. Ltd. have recently introduced superminis that threaten the VAX. Other U.S. vendors such as Hewlett-Packard Co. and Nippon Data General have also introduced 32-bit superminis to the Japanese market.

"In terms of selling in Japan, the issue is more one of desire than anything else," Katz said of these and other potential threats.

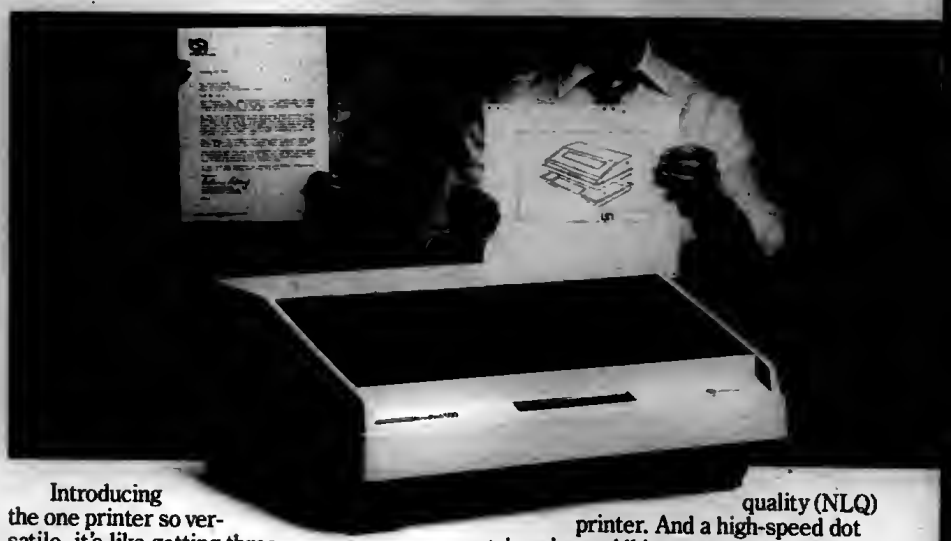
Big Blue To Pay Fee To Aid Sales

RYE BROOK, N.Y. — Sales offices of IBM's National Marketing Division will pay a fee to selected software and service firms to help sell and install IBM small computers, including models from the Personal Computer to the System/38, the company announced recently.

Under the marketing assistance program, sales offices and product centers can select local software and service organizations using IBM sales leads. According to the current schedule, the fees range from 2.5% for larger systems, such as the System/38, to 10% for smaller processors and applications software.

The company will enter into individual marketing assistance contracts with the third parties for the Personal Computer, XT, Displaywriter, System/23 Datamaster, System/34, System/36 and System/38.

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Over Conditions of Makeshift Facilities

NCC '83 Pavilion Exhibitors May Sue Afips

By Jeffry Beeler
CW West Coast Bureau

SHERMAN OAKS, Calif. — A spokesman for the disgruntled pavilion exhibitors at last May's National Computer Conference has all but abandoned hope that his group might avoid a legal showdown with NCC'a organizers over problems in the computer ahow'a makeshift exhibit area.

Winters Associates, Inc.'a President Randy Winters last week accused the American Federation of Information Processing Societies (Afips) of failing to respond promptly and concretely enough to long-standing vendor complaints about the oppressive heat in NCC's pavilion exhibit hall.

Afips' alleged ineffectiveness in resolving the pavilion exhibitors' grievances will almost certainly encourage many of the companies to make good on their repeated threat to hit the show sponsor with a class-action lawsuit, Winters said.

For several weeks, Winters had repeatedly urged his fellow pavilion exhibitors not to resort to legal action against Afips if they could possibly avoid it. Litigation, he warned, can prove both costly and time-consuming and carries no absolute guarantees of success.

But last week, during a phone interview, Winters abruptly disregarded his own advice and, for the first time, publicly declared his willingness to join in a class-action lawsuit against Afips if one is ever filed.

Winters' involvement in the litigation issue began last May when exhibitors' discontent with the NCC '83 pavilion exhibit area first came to a head. At the time, occupants of the temporary tent facility were split into two main factions. On one side were those demanding that Afips be sued without delay. On the other side were the more moderate voices urging pavilion exhibitors to pursue a settlement through quiet negotiations rather than through litigation.

Even before the show closed, Winters had emerged as an unofficial leader and spokesman for the moderate camp and had volunteered to serve indefinitely as an information clearinghouse for other exhibitors who endorsed his tactics. His efforts to avoid an outright legal clash won him many sympathizers and helped persuade

(Continued on Page 76)

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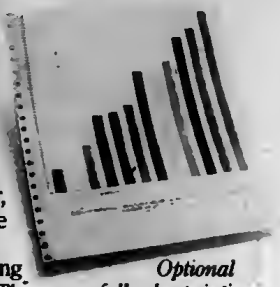
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Conway Data Inaugurates Data Base

ATLANTA — An on-line data base service giving users access to corporate facility planning information has been inaugurated by Conway Data, Inc.

Accessible via phone links with desktop and personal computers, the Sitenet data base includes information on tax incentives for industrial development, over 5,000 key contacts in economic development areas and a directory of office and industrial parks, the vendor said. In addition, a plant file includes data on industrial expansion projects worldwide, with information on the amount of investment, acreage and square footage of new industrial projects, the company claimed.

Users in 145 U.S. cities can access Sitenet by calling the nearest node on the system's network. The system is interactive, allowing users to request additional site data online from development organizations participating worldwide.

Further, users may order certain hard-copy reports from the data base or other books and periodicals from the vendor's library by selecting from choices displayed on the screen.

More information on Sitenet is available from Conway Data, 1954 Airport Road N.E., Atlanta, Ga. 30341.

Softwareland Retaliates

Computerland Countersued in Name Battle

By Robert Batt
CW West Coast Bureau

SCOTTSDALE, Ariz. — The legal battles in the computer retail business over the use of the word "land" took another twist recently when Softwareland Corp. filed a countersuit against Computerland Corp., charging the personal computer chain with unlawful restraint of business.

The suit, filed in the Federal District Court of Arizona, was a retaliatory measure by Softwareland after it had been sued by Computerland for allegedly infringing on the California-based company's business activities with its choice of name.

"We have filed an immediate countersuit on the issue because, to us, it seems rather presumptuous for anyone to assume they own such a common word as 'land,' and it is damaging to us as we are just getting off the ground," complained Softwareland's president, Taylor Coleman.

Seeking to recover legal costs and damages resulting from the Computerland action, Softwareland has charged its rival with "taking legal action at a time when Softwareland is in the process of establishing itself in the retail software industry."

The company recently opened its first three stores here, with others targeted for locations around the U.S. during the course of the year. With software sales in the U.S. predicted to reach a volume of $8 billion by 1987, the industry has plenty of room for competition, Coleman added.

Replying to the moves by Softwareland, Mike Walter, general counsel for Computerland, said it was not the company's purpose to put its rivals out of business. "We are perfectly happy to have them be in business as long as they do not use a name that is confusingly similar to ours and is an attempt to profit by our reputation," he said.

"Our claim has to do with the fact that we have invested many years and millions of dollars in our name. No one else was using that name in the computer retail industry when we started. Softwareland could have chosen any name to represent them, but instead they chose one that is confusingly similar to ours. That gives us a valid cause for complaint," Walter asserted.

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Exec Proposes Unionizing Exhibitors

By Jeffry Beeler
CW West Coast Bureau

SHERMAN OAKS, Calif. — The head of a computing firm here has called for the formation of a "dues-paying union" that would represent trade show exhibitors in their disputes with conference organizers.

Winters Associates, Inc.'s President Randy Winters proposed the union idea in response to a running dispute between the American Federation of Information Processing Societies, Inc. (Afips) and the pavilion exhibitors at last May's National Computer Conference (NCC).

The dispute was triggered by a massive air-conditioning failure in a makeshift exhibit hall where Afips housed much of the exhibitor overflow from NCC's main show floor.

Occupants of the pavilion exhibit facility have blamed the faulty air conditioning and the resulting 100°-plus temperatures for driving away prospective sales leads and have threatened to recoup their losses by filing a class-action lawsuit.

The need for such a drastic reaction and all its potential consequences might have been easily avoided, Winters speculated, if the NCC exhibitors had only banded together beforehand to form their own union.

"In proposing the creation of a union for trade show exhibitors, I'm not trying to say that vendors should tell organizers how to run their conferences," he explained. "But I think exhibitors need to unite and gain some kind of voice in deciding what happens at the events in which they participate. After all, exhibitors are the ones who really make the trade shows work."

Winters envisions his proposed union as a liaison organization that would speed communications between vendors and organizers and thus possibly defuse potentially serious disputes before they escalate into major public controversies.

Exhibitors From NCC May Sue

(Continued from Page 75)

even the most ardent proponents of immediate class action to adopt a wait-and-see attitude.

But now, many of the advocates of a negotiated settlement are beginning to rethink their positions and are looking with renewed interest at legal options they originally hoped to avoid exercising, Winters said.

Behind the emerging shift in the pavilion exhibitors' attitudes is a widespread perception that Afips has neglected to do enough to compensate the vendors for their NCC-related troubles.

On May 19, while NCC '83 was still in session, Afips promised to draft and issue a report identifying the source of the pavilion exhibit problems and propose specific financial or other remedies. The report was scheduled to be made available to the dissatisfied exhibitors within 30 days of NCC's closing. But as of early this month, all Afips had reportedly released was a letter vowing unspecified action against the air-conditioning contractor.

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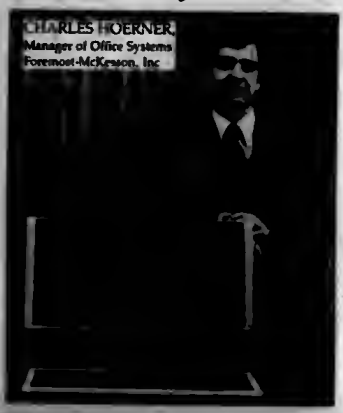
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Unidata, Cognitive Sign Pact for AI System

NEWINGTON, N.H. — Unidata Systems, Inc. has announced that it has entered into a licensing agreement with Cognitive Systems, Inc. for the development of an advanced artificial intelligence computer system.

Under the terms of the licensing agreement, Cognitive will incorporate its proprietary Natural language technology into a new Unidata product that will use a Motorola, Inc. 68010 microprocessor.

The objective of the Natural language product is to simulate a salesman's assistant, according to Unidata.

James Cook, Unidata president, said the system will take a year to develop.

The system will target small businesses, allowing salesmen to use English language commands and interrogatories to enter and retrieve sales data in the manufacturing, distribution, retail and service industries, according to the company.

Such information will include inquiries about active, passive and prospective accounts and product and policy information.

ADP Signs Pact to Acquire GTE's Brokerage Services

CLIFTON, N.J. — Automatic Data Processing, Inc. (ADP) and GTE Telenet, Inc. have announced an agreement for the sale of GTE's brokerage services business to ADP. Terms were not disclosed.

GTE Telenet Information Services provides data base and quotation services for the investment and brokerage community, according to an ADP spokesman.

According to Josh Weston, ADP's president and chief executive officer, "The acquisition will accelerate ADP's present development of an interactive workstation for sales, trading and operational personnel in the financial services industry."

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Forest Service Awards DG Net Contract

WESTBORO, Mass. — The U.S. Forest Service has awarded Data General Corp. a contract whose value could exceed $70 million over the first three years of its life, the company announced.

The contract calls for DG to provide a nationwide network of office automation and information management systems based on DG's Comprehensive Electronic Office software and 32-bit MV family of superminicomputers. The Forest Service will have the option of buying 800 systems, which are valued at about $85,000 each.

Installation will begin this summer, with the Forest Service committed to at least 300 systems. The systems will provide office automation and data processing functions to over 800 Forest Service locations and link those locations through communications software. About 14,000 user workstations will be installed over the contract period.

In addition to computer systems and software, DG will provide training, maintenance and software support at each location.

A Forest Service spokesman said the systems "will reduce costs, improve service to the public and handle the increased complexity of such programs as land line location, timber sales [and] mineral leasing."

Earnings Up At AMD, Intel

(Continued from Page 71)

The company's strong performance underscores the renewed vitality of the semiconductor industry, which in recent months has shown signs of full recovery from the 18-month-long recession that crippled several large semiconductor manufacturers. AMD was one semiconductor maker that managed to escape the recession largely unscathed.

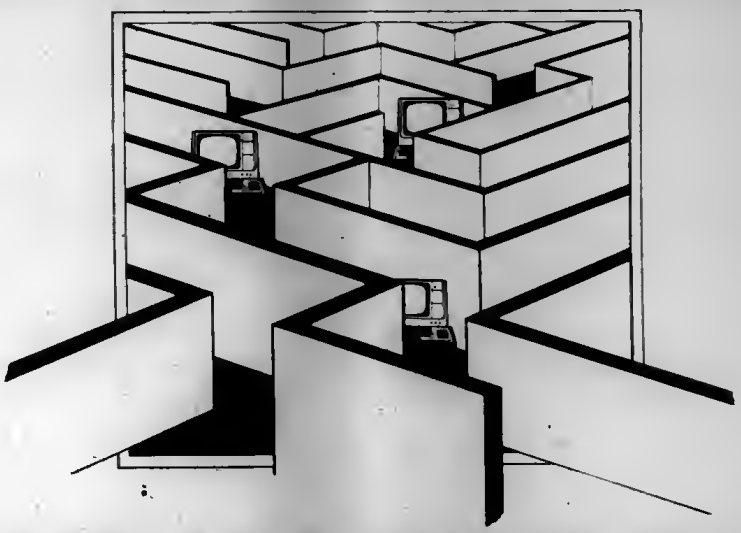
Commenting on the company's recent results, W.J. Sanders III, president and chief executive officer at AMD, said, "Strong product demand from original equipment manufacturers, distributors and the international sectors of our business combine to encourage our belief in the durability of the upturn and the strength of the recovery. Of particular importance is the growing strength in orders from OEMs."

Intel Corp., which recently ended its wage and hiring freeze, reported second quarter earnings last week that nearly tripled the profits posted a year ago.

Profits totaled $24.3 million or 22 cents per share, up from earnings of $8 million the same quarter a year ago. Revenues were up 20% to nearly $260 million, compared with sales of $216 million for the same quarter in 1982.

Andrew Gove, Intel's president and chief executive officer, said, "In the past year, the semiconductor industry has gone from feast to famine to feast. This year's recovery ... appears more durable than the demand bubble we experienced last year."

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If you have a "need to know" about data communications terminals — then August 29th is the issue of *Computerworld* you won't want to miss. And if you're a manufacturer or marketer of terminals or systems, don't forget August 12th — that's the last day you can reserve space in the Special Report. Call your *Computerworld* salesperson for more details or call Don Fagan, Vice President, Sales at 617-879-0700.

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Forecasts & Findings

Microsoft Mart to Grow

The market for microcomputer business applications software will top $7 billion by 1987, reflecting rapid expansion in all segments, according to **Microcomputer Business Applications Software**, by Creative Strategies International. This dramatic growth in both company and market size in the next few years will generate more vertical integration, in-house support, program testing, captive distribution channels and sophisticated development tools.

Changes in direction and emphasis are inevitable in this still-evolving industry, and many diverse capabilities will be critical to success as marketing requirements shift, competition intensifies sharply and distribution channels tighten, the report stated. The financial analysis software market, one of six applications segments analyzed and forecast in the report, continues to be characterized by high advertising expenditures and lower prices, a competitive trend expected in other applications as software packages proliferate.

Priced at $1,450, the study is available from Creative Strategies International, Suite 275, 4340 Stevens Creek Blvd., San Jose, Calif. 95129.

AT&T Stirs Industry

The reorganization of AT&T will cause radical changes in the U.S. telecommunciations industry for the rest of this decade, including dramatic changes in cost structures with major implications for corporate telecommunications systems planning, according to **The Changing Economics of Telecommunications**, by Input, Inc.

In the short term, local-loop costs will rise by as much as 200%, but new competitive technologies, especially satellites, will dramatically lower the unit costs for new long-distance transmission, the report said. A combination of transaction-based pricing and more restrictive boundaries will result in much higher costs, according to Input, which expects such pricing schemes to become the norm. Also, competition for relatively profitable long-haul transmission will intensify in the next few years, and satellite technology will become a major alternative to land-based lines. More circuits and faster data transmission are said to be among the factors keeping satellite communications costs low.

The report costs $600 from Input, located at 1943 Landings Drive, Mountain View, Calif. 94043.

Micro Nets to Blossom

Although most industry attention is focused on Ethernet and broadband networks, the greatest amount of activity is occurring in networks of personal computers with transmission rates below 3M bit/sec, according to **Personal Computer LANs** [local-area networks], by Strategic, Inc. By 1987, there will be 110,000 personal computer networks installed, containing 920,000 workstations and representing a total value of $4.8 billion, the report added.

While there are currently 800 high-speed broadband and baseband networks installed, there are well over 12,000 personal computer networks in service. Moreover, there are 4,400 multiuser microcomputer networks providing typical network services, the report estimated. Expansion in the micro network mart will be spurred by a rapid drop in the price of micro network interfaces, currently averaging $500, the report said. It predicted that connection costs will drop so fast that network hardware, including cables, will be a negligible part of system cost, comparable to installing telephones.

By comparison, Ethernet and broadband networks cost $2,000 and up for a high-speed connection. Also, Ethernet costs are not expected to decline significantly when its hardware is reduced to integrated circuits, according to the report, which is available for $950 from Strategic through P.O. Box 9747, San Jose, Calif. 95157.



A communication network is as strong as its weakest link. Get the facts.

The person who plans and acquires your company's network equipment and services can make or break the chain that links your DP and OA systems.

Journal

Selecting the right services and equipment requires up-to-the-minute information and practical advice about the products, issues, problems and opportunities. Now, the information you need to plan your communication network strategy is available in an exciting video format: the Conference Journal. **Communication Networks: Alternatives for the '80s** and **Local Area Networks: The Major Considerations** address the ins and outs of networking. Jointly developed by DELTAK and CW Communications, the Journals were taped on location at the fifth annual Communication Networks conference and are available only from DELTAK, the world leader in video-based DP training.

Communication Networks: Alternatives for the '80s.
In five 20-30 minute color video sessions, you'll hear from industry experts FCC Chairman Mark Fowler, American Bell/AIS President Arch McGill and Dr. Dixon Doll, along with others, sharing their insights on topics such as short-haul microwave, PBX technology, communications processors and satellite technology.

Local Area Networks: The Major Considerations.
In this Conference Journal, data communications pioneer Dr. John McQuillan is joined by Diana Last and Drs. Kenneth Thurber and Howard Frank. Four video sessions focus on the capabilities and architectures of LAN communications: the baseband vs. broadband debate, choosing the best system for your needs, flow control, and diagnostic network monitoring.

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INTECH '83 features a new concept in session presentation with this theater-in-the-round approach. The Integration Theater is a unique and special format ideally suited for the world-class speakers and the panels and sessions to be held here. These internationally renowned consultants and their topics include:

- Dr. Michael Hammer, President, Hammer & Co.
  "Managing Micros in the Corporate Information System"
- David Friend, Special Consultant
  "Graphics: New Management Solutions"
- Will Zachman, VP, Technology Assessment, IDC
  "Microprocessor Impact on Systems and Uses"
- Dr. Howard Frank, President, ConTel Information Systems, Inc.
  "Local Networks: Before You Get One"
- Dr. Howard Morgan, Chairman, Advanced Office Concepts
  "Solving DP/WP Integration Problems"
- Edward Horrell, President, Mitchell & Horrell, Inc.
  "Integration through CBX Technology"
- Dr. John McQuillan, President, McQuillan Consulting, Inc.
  "Strategic Planning for Integration — Who, How, When & Why"
- Harry Newton, President, The Telecom Library
  "Personal Career Advancement Through Embracing Office High Technology"

Exhibits

There will be over 400 exhibits by leading information companies with the latest vendor architecture and technologies available. Special time is set aside for conference attendees to view all the exhibits and talk first-hand to the vendors. Exhibit hours are 12:00-6:00 p.m. Tuesday, 10:00 a.m.-6:00 p.m. Wednesday, and 10:00 a.m.-5:00 p.m. Thursday.

Conferences

Professional seminars and discussions concerning state-of-the-art-technologies will be led by the foremost experts in the field. It is the first time so many of the best and most renowned industry speakers will be gathered together under one roof to discuss the integration of communications, office automation and data processing.

General Sessions will be presented by professionals with 'hands-on' experience — professionals who have actually lived through the experience tell their stories and offer suggestions and solutions. Here's a sampling of the general session topics:

- *"Satellite Networks"*
- *"Network Intelligence"*
- *"The Multifunction Workstation"*
- *"Pilot Projects: Corporate PC Acceptance"*
- *"MIS — OA: Resolving the Conflicts"*



Dr. Howard Frank, President
ConTel Information Systems, Inc.



Dr. Howard Morgan, Chairman
Advanced Office Concepts

In-Depth Tutorials

On October 31 some of the nation's leading consultants take the platform for a full day's formal instruction. These four concurrent in-depth tutorials include lecture notes, lunch and a reception with the speakers.

A — *"Corporate PC Management"* — Dr. Michael Hammer, Hammer & Co.
B — *"Advanced CBX Applications"* — Edward Horrell, Mitchell & Horrell
C — *"Local Area Networks"* — Dr. Ken Thurber & Dr. Harvey Freeman, Architecture Technology Corp.
D — *"Strategic OA Planning"* — Dr. John McQuillan, McQuillan Consulting



Dr. John McQuillan, President
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To register, or for more information, call Louise Myerow, Registration Manager, toll-free 800-225-4698 (in Mass., call collect 617-879-0700). Or return the coupon below.

INTECH '83 is sponsored by National Trade Productions, Inc. with conference program coordinated by the Conference Management Group of CW Communications/Inc.

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☐ Monday "In-Depth" Tutorial (includes lunch) Circle one session: A B C D	$295.
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POSITION ANNOUNCEMENTS

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The Data Management Support function is responsible for assisting both technical and non-technical personnel to utilize SAUDIA's data base management systems (DBMS). This responsibility includes maintenance of the data dictionary and procedures regarding the structure, content and control of information resources. The project manager will supervise a staff of three data base specialists, who will assist both users and systems analysts to design and implement DBMS applications. A bachelor's degree and a minimum of six years prior EDP experience required in large scale IBM operation with at least two years in a DBA capacity; supervisory experience and knowledge of IMS and/or TOTAL desirable.

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Similar opportunity for professional with qualifications as above to design new, cost-effective marketing systems.

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Minimum BS, or equivalent, 5-8 yrs. working experience in large-scale IBM O/S systems software programming/maintenance, thoroughly grounded in system generation of OS/VS2 and SMP, NCP, ACF/VTAM. Know OS products, communication software packages and working utilities; familiar with S/370 Assembler and other programming languages; able to work effectively in "team" environment. Required to travel occasionally.

SYSTEMS PROGRAMMER QA SUPPORT

BS, with 3-5 yrs. working experience in software QA or similar assignments, have in-depth knowledge and understanding of MVS, data base management systems, applications analysis/development/design/implementation and possess good written skills. Aid in establishing internal/external software programming standards for all products emanating from systems support, database and applications groups. Monitor, document and report on all QA aspects of software in use.

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Function as the project leader in the design, development, installation, planning and budgeting for a divisional network system. Applicants must have a technical degree and experience with communications hardware and protocols, familiarity with ISO and ANSI standards, including X.25 and knowledge of SNA, DECNET and PRIMENET systems/protocols.

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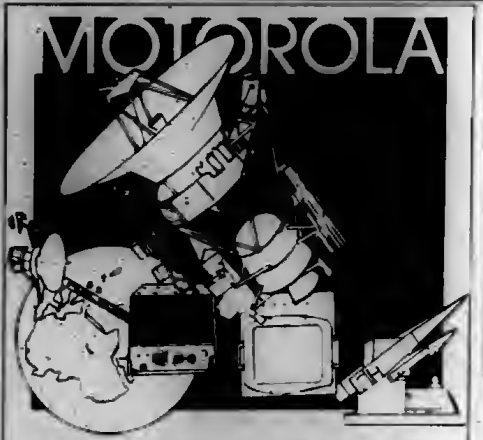
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Request for Proposal Number 649 due Tuesday, August 16, 1983, 3:30 P.M., for acquisition of a Mark Series Reader to be optionally connected to a Burroughs systems for Hinds Junior College.

Request for Proposal Number 650, due Wednesday, August 17, 1983, 3:30 P.M., for the acquisition of an existing fiscal and program information software package to run on an Amdahl V6/V8 environment at the State Computer Center to help the Home Health Services Division of the State Department of Health in their everyday fiscal and programmatic functions.

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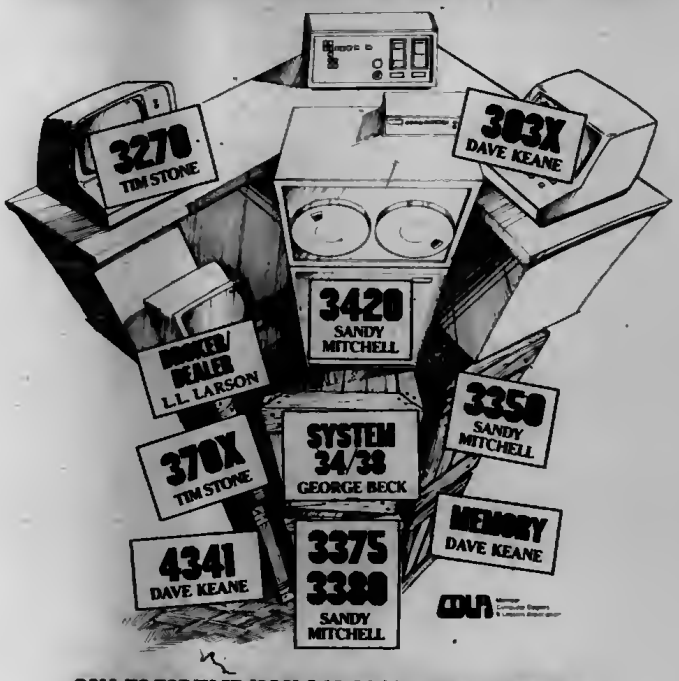
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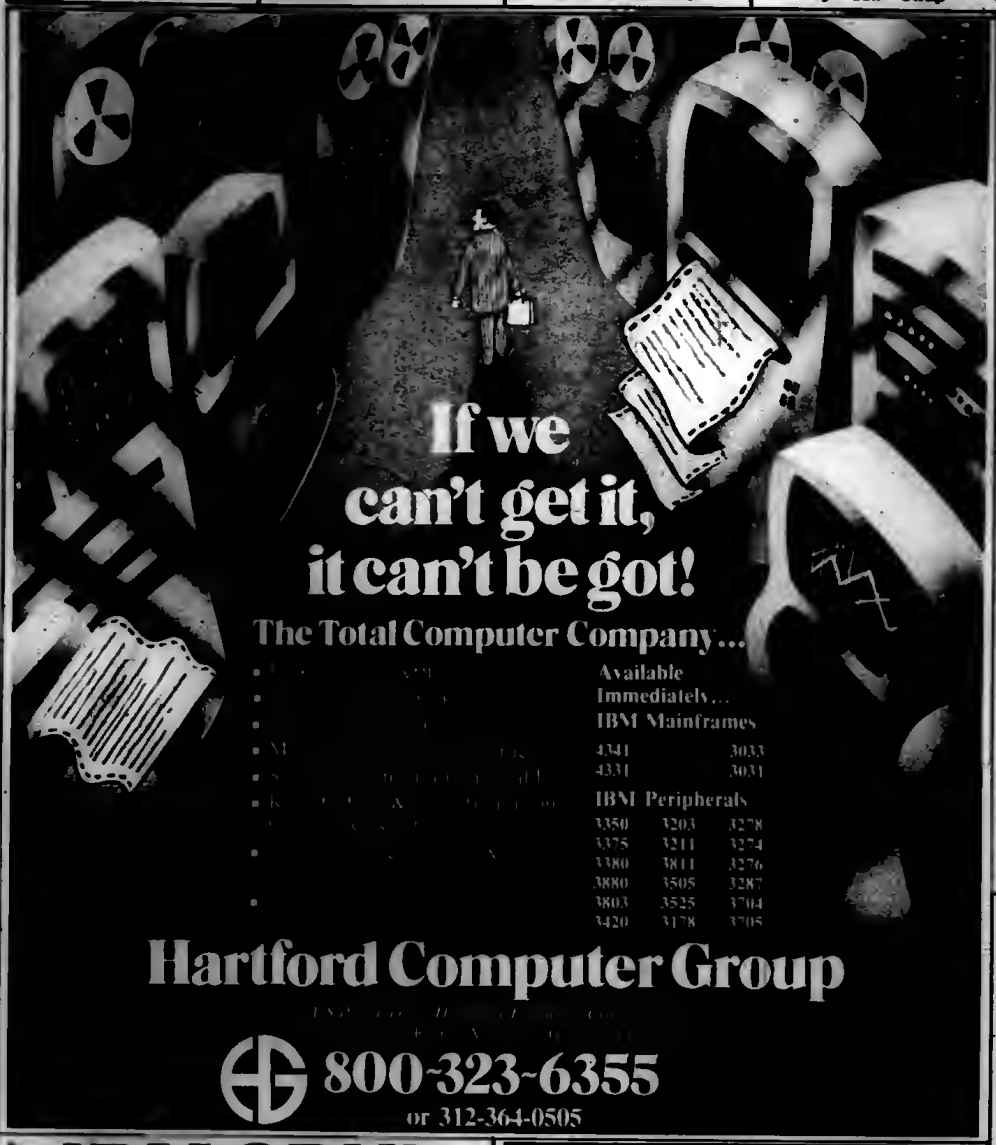
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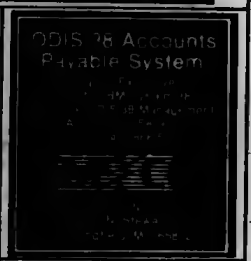
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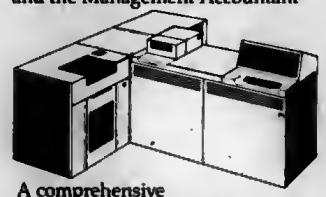
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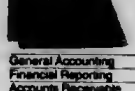
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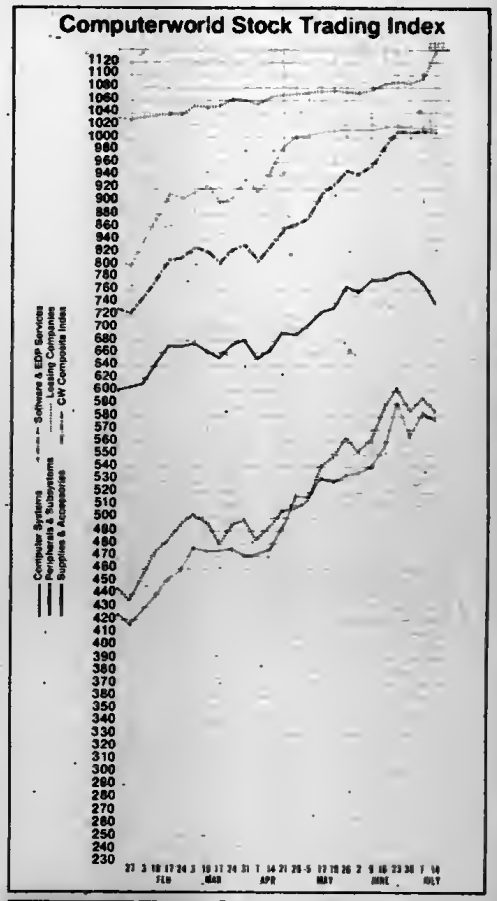
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Computerworld Stock Trading Summary

All data is compiled and formatted by TRADE QUOTES INC Cambridge Mass 02139

CLOSING PRICES WEDNESDAY, JULY 13, 1983

E X C H		1982-83 RANGE (1)	CLOSE JUL 13 1983	WEEK NET CHNGE	WEEK PCT CHNGE
	COMPUTER SYSTEMS				
A	AMDAHL CORP	9- 30	28 1/8	-1 1/2	-3.8
N	BURROUGHS CORP	28- 58	50 5/8	-3 7/8	-7.1
O	COMPUTER AUTOMATION	7- 17	15	+ 3/4	+1.6
A	COMPUTER CONSOLES	8- 24	22 3/8	-1 1/4	-5.2
N	CONTROL DATA CORP	21- 82	76 7/8	-2	-2.5
N	CRAY RESEARCH INC	20- 82	46 1/2	-2 1/2	-5.1
N	DATA GENERAL CORP	20- 73	68 1/4	+8 0/8	+11.4
N	DATAPOINT CORP	11- 38	28 1/8	- 3/8	-1.8
N	DIGITAL EQUIPMENT	62-193	113 3/8	-2 3/4	-2.3
A	EECO INC	6- 18	12 7/8	- 1/4	-1.7
N	ELECTRONIC ASSOC.	9- 13	14	+ 3/4	+5.8
A	FLOATING POINT SYST	18- 44	40	0	0.0
N	FONSORO	22- 47	38 3/4	-2 1/8	-5.4
O	FULCRUM COMP CAP	1- 3	1/4	0	0.0
O	GENERAL AUTOMATION	3- 18	13 1/2	- 3/8	-2.7
N	HARRIS CORP	20- 31	43 1/2	-1	-2.1
N	HEWLETT-PACKARD CO	38- 84	84 1/2	-3 1/4	-3.7
N	HONEYWELL INC	80-134	111 5/8	-3 3/8	-2.8
N	IBM	97-124	121 1/4	- 3/8	-0.3
O	IPL SYSTEMS INC	5- 14	11 1/4	-1	-8.1
O	MAGNUSON COMP SYSTS	2- 3	1	- 1/2	-25.0
B	MANAGEMENT ASSIST	7- 18	12 5/8	- 5/8	-4.7
O	MINI-COMPUTER SYST	1- 2	2 3/8	- 1/2	-18.0
B	MODULAR COMPUTER SYS	8- 18	13 1/4	- 1/8	-0.8
B	MOHAWK DATA SCI	10- 18	14 1/4	- 3/8	-2.5
B	NCR	38-125	107 1/2	- 1/4	-5.4
N	PERKIN-ELMER	17- 35	31 1/2	-2 1/2	-7.3
N	PRIME COMPUTER INC	11- 30	24 1/8	-3 5/8	-15.2
N	SPERRY CORP	29- 41	38 1/2	-1 3/8	-3.3
O	TANDEM COMPUTERS INC	14- 34	17	-1 5/8	-8.5
N	TEXAS INSTRUMENTS	71-176	124 3/8	+1 1/4	+1.0
A	WANG LABS "B"	13- 42	30 5/8	- 3/8	-1.5
A	WANG LABS "C"	11- 42	30 3/4	- 3/8	-1.8
	LEASING COMPANIES				
O	BOOTHE FINANCIAL CP	22- 55	54	+7	+14.8
B	CONDISCO INC	7- 37	35 3/8	-1 1/4	-3.4
B	COMMERCE GROUP CORP	1- 1	1/4	0	0.0
O	COMPUTER INVSTRS GRP	1- 2	1	+ 1/4	+33.3
O	CONTINENTAL INFO SYS	5- 32	30	- 1/2	-1.6
N	DPF INC	5- 14	13 7/8	+1 0	+7.7
O	ITEL	1- 3	1 1/2	+ 3/8	+33.3
O	LEASPAC CORP	1- 2	1/8	0	0.0
N	M.D. LEASING	18- 47	38 5/8	- 7/8	-2.1

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O-T-C PRICES ARE BID PRICES AS OF 3 P.M. DA LAST BID
(1) TO NEAREST DOLLAR

E X C H		1982-83 RANGE (1)	CLOSE JUL 13 1983	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & EDP SERVICES				
O	ADVANCED COMP TECH	1- 8	8 1/2	-1	-13.3
O	ADVANCED SYSTEMS INC	8- 20	18 3/4	- 1/4	-1.3
O	AGS COMPUTERS INC	7- 20	20 1/4	+2 1/2	+8.7
O	AMERICAN SOFTWARE	22- 31	28 1/2	+3 3/4	+12.8
N	AMACOMP INC	8- 23	13 1/8	-1 7/8	-11.8
O	ANALYSTS INTL CORP	9- 26	18 1/2	+1 1/4	+8.1
A	APPLIED DATA RES.	8- 37	30 3/8	-4 1/4	-12.2
O	BSK COMPUTER SYSTEMS	12- 38	33 3/8	0	0.0
B	AUTOMATIVE COMP INC	1- 7	5 3/8	- 1/8	-2.2
B	AUTOMATIC DATA PROC	21- 44	43 1/4	+ 5/8	+1.4
B	CGA COMPUTER ASSOC	5- 13	13 3/8	- 1/4	-1.8
O	COMPUTER ASSOC INT'L	6- 35	33	+ 1/2	+1.5
O	COMPUTER HORIZONS	8- 20	18 3/8	+3 3/4	+87.1
O	COMPUTER NETWORK	4- 18	8 7/8	- 1/8	-1.3
B	COMPUTER SCIENCES	11- 23	19 1/4	- 1/2	-2.5
B	COMPUTER TASK GROUP	8- 22	16 1/2	- 3/4	-4.8
O	COMPUTER USAGE	2- 22	17	-1 1/2	-8.1
O	COMPUTONE SYSTEMS	13- 38	17 1/2	- 1/2	-2.7
B	CONSERV CORP	10- 20	19	+1 3/4	+13.2
O	CONSHARE	8- 12	11 1/4	- 3/4	-6.3
O	CULLINET SOFTWARE	12- 84	63 1/4	- 3/8	-0.6
O	CYCORE SYSTEMS INC	8- 77	20 1/2	- 1/2	-2.3
O	DATA DIMENSIONS INC	1- 2	3/4	0	0.0
O	DATATAB	0- 2	1 1/4	-	-4.7
O	DYATRON CORP	2- 4	3 1/8	- 1/8	-3.8
B	ELECTRONIC DATA SYST	10- 42	35 3/4	-1 5/8	-4.3
N	INFORMATICS INC	18- 34	28 1/2	- 7/8	-3.1
O	IDENTE CORP	-1- 3	1 1/2	0	0.0
O	IPR COMPUTER MARKET.	1- 2	1 1/8	0	0.0
B	KEANE ASSOCIATES	4- 15	12 3/4	-1 1/4	-8.9
A	LOGICON	12- 44	42 5/8	+ 3/8	+0.8
O	MNET SCI AMER INC	8- 33	20	-4 1/4	-16.8
O	MATHEMATICA INC	12- 28	26 1/2	- 3/8	-2.3
O	MATHEMATICAL APP GRP	12- 23	18	0 -	0.0
B	NATIONAL DATA CORP	5- 29	22	- 1/2	-2.2
B	PANSOPHIC SYSTEMS	8- 30	24 1/2	-3 1/4	-11.7
O	PLANNING RESEARCH	6- 21	18	-1 1/4	-6.4
B	POLICY MGMT SYSTS CP	36- 68	58 1/2	- 1/4	-0.4
O	PROGRAMING & SYS	1- 8	4 3/4	- 1/4	-5.0
B	REYNOLDS & REYNOLD	17- 84	48	+1	+2.2
B	SEI CORP	11- 38	29 1/4	- 1/4	-0.8
O	SHARED MEDICAL SYST	13- 43	41 1/4	+1 1/8	+2.8
O	SCIENTIFIC COMPUTERS	8- 14	14	+1 1/4	+8.8
O	SOFTWARE AG	3- 17	10 5/8	- 1/8	-1.1
N	TYMSHARE INC	13- 38	18 3/8	-1 3/8	-6.8
A	URS CORP	5- 18	15 5/8	-1 1/8	-6.7
B	WYLY CORP	7- 17	13 1/4	-1	-7.0
	PERIPHERALS & SUBSYSTEMS				
P	AM INTERNATIONAL	2- 7	6	+ 1/8	+2.1
A	ANDERSON JACOBSON	8- 20	21 1/4	- 1/4	-1.1
O-	AUTO-TROL TECHNOLOGY	8- 26	22 5/8	-2 1/2	-8.8
O	BANCTEC INC	3- 31	20 3/4	+1 1/4	+6.4
A	BECKMAN INSTR	6- 17	11	+1 1/2	+12.8
A	BOLT-BERANEK & NEW	14- 76	75 5/8	+3 1/8	+4.3
O	CAMBEX CORP	7- 8	7 3/4	+ 1/8	+6.7
O	CENTRONICS DATA CORP	8- 30	29 3/4	- 1/2	-1.8
A	CETEC CORP	6- 12	8 7/8	-1 1/8	-10.2
O	COGNITRONICS	2- 20	13 5/8	-3 1/8	-18.8
O	COMPUTER COMMUN.	1- 7	3	0	0.0

E X C H		1982-83 RANGE (1)	CLOSE JUL 13 1983	WEEK NET CHNGE	WEEK PCT CHNGE
O	COMPUTER NETWORK INC	4- 21	18 7/8	- 7/8	-73.4
O	COMPUTER TRANSCEIVER	4- 12	8 3/4	0	0.0
A	COMPUTERVISION CORP	18- 93	43 3/8	-3	-6.1
B	COMRAC CORP	17- 38	31 5/8	- 1/2	-2.3
A	DATA ACCESS SYSTEMS	1- 4	1	0	0.0
B	DATAPRODUCTS CORP	18- 41	27 1/4	-2 1/8	-7.2
B	DATAGRAF CORP	8- 12	10 5/8	+ 3/8	+3.8
O	DATUM INC	2- 17	13 1/8	-1 1/4	-8.8
O	DAVID JAMISON CARLYL	2- 9	3 3/8	- 1/8	-3.5
O	DECISION DATA COMPUT	3- 18	12 7/8	- 1/8	-0.9
O	DELTA DATA SYSTEMS	1- 4	3	+ 1/8	+8.8
B	ELECTRONIC M A N	5- 11	8 3/4	+ 1/8	+1.2
O	EVANS & SUTHERLAND	18- 96	48	+1	+7.2
O	GANDALF TECHNOLOGIES	10- 22	12	+ 3/4	+6.8
B	GEN. DATA COMM IND	6- 29	23 3/8	-1 7/8	-7.4
O	GENERAL TERMTNAL CP	1- 2	1/2	0	0.0
O	GREAT SOUTHWEST IBA	2- 8	2	- 1/2	-20.0
B	HAZELTINE CORP	7- 31	29 1/8	+ 1/8	+0.4
O	ICOT CORP	3- 18	7 5/8	+ 3/4	+10.8
O	INFORMATICA INTL INC	18- 72	18 1/2	-2	-10.8
O	INTEL CORP	17- 84	38 1/4	+ 3/4	+2.0
B	IPL SYSTEMS INC	5- 14	11 1/4	-1	-8.1
A	LUNDY ELECTRONICS	7- 18	18	+1 1/2	+8.5
O	MSI DATA CORP	14- 38	20 3/4	+1 1/4	+6.8
O	NETWORK SYSTEMS CORP	8- 34	28 7/8	-1 7/8	-8.8
O	ONEX	3- 8	3 1/4	0	0.0
B	PERIPHONE CORP	20- 38	22 1/4	-1 3/4	-8.3
A	PEAKIL CORP	7- 14	12 8/8	- 3/4	-5.8
B	QANTEX CORP	13- 28	17 1/4	- 1/2	-2.8
N	RECOGNITION EQUIP	6- 17	14 3/4	-1 1/4	-7.8
O	SCAN DATA	1- 3	2 3/4	+ 7/8	+46.8
B	STORAGE TECHNOLOGY	18- 33	20 1/2	-1 1/4	-5.7
O	SYKES DATATRONICS	8- 27	18 1/8	- 1/8	-1.2
A	T BAR INC	7- 17	16	+1	+6.2
A	TAB PRODUCTS CO	8- 30	20 1/4	-2 7/8	-8.8
B	TEC INC	8- 12	8 1/8	+ 1/8	+1.6
N	TEKTRONIX INC	34- 87	79 1/4	- 1/2	-0.8
N	TELEX	9- 31	28 1/2	- 3/8	-1.2
O	TESDATA SYSTEMS CP	3- 18	14	+ 1/4	+1.8
B	TIMEPLEX INC	7- 38	29 3/4	-1 1/8	-4.1
O	VISUAL TECHNOLOGY	8- 28	18 3/4	-1 1/4	-6.8
B	WILTEK INC	1- 4	1 7/8	+ 1/8	+7.1
	SUPPLIES & ACCESSORIES				
B	AMERICAN BUS FORMS	11- 31	29	-1	-3.3
O	BALTIMORE BUS FORMS	1- 2	1 1/4	+ 1/4	+25.0
B	BARRY WRIGHT	13- 31	28 1/8	+ 1/4	+0.8
O	CYBERNETICS INC	1- 2	1	- 1/4	-20.0
A	DUPLEX PRODUCTS INC	12- 26	22 1/4	-1 1/4	-5.3
B	EMHIL BUS. FORMS	6- 29	22 3/4	- 1/8	-0.5
B	3M COMPANY	48- 86	84	-1 1/8	-1.3
N	MOORE CORP LTD	28- 51	47 3/4	- 5/8	-1.2
N	NASHUA CORP	8- 22	20 5/8	-1 1/8	-5.1
O	STANDARD REGISTER	11- 24	23	- 1/8	-1.4
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